AD-A061 987 WASHINGTON UNIV SEATTLE DEPT OF OCEANOGRAPHY F/G 13/3
AQUATIC DISPOSAL FIELD INVESTIGATIONS DUWAMISH WATERWAY DISPOSA--ETC(U)
JAN 78 S P PAVLOU, R N DEXTER, W HOM DACW39-76-C-0167
UNCLASSIFIED WES-TR-D-77-24-APP-E NL

1 OF 6
AD
A061987

AD A061987

LEVEL III

0

DREDGED MATERIAL RESEARCH PROGRAM

U.S. ARMY ENGINEER WATERWAYS EXPERIMENT STATION

TECHNICAL REPORT D-77-24

6

AQUATIC DISPOSAL FIELD INVESTIGATIONS DUWAMISH WATERWAY DISPOSAL SITE, PUGET SOUND, WASHINGTON.

APPENDIX E: RELEASE AND DISTRIBUTION OF POLYCHLORINATED BIPHENYLS INDUCED BY OPEN-WATER DREDGE DISPOSAL ACTIVITIES.

by

10 Spyros P. Pavlou, Robert N. Dexter, Wilson Hom
Andrew J. Hafferty, Katherine A. Krogslund

Department of Oceanography
University of Washington
Seattle, Washington 98195

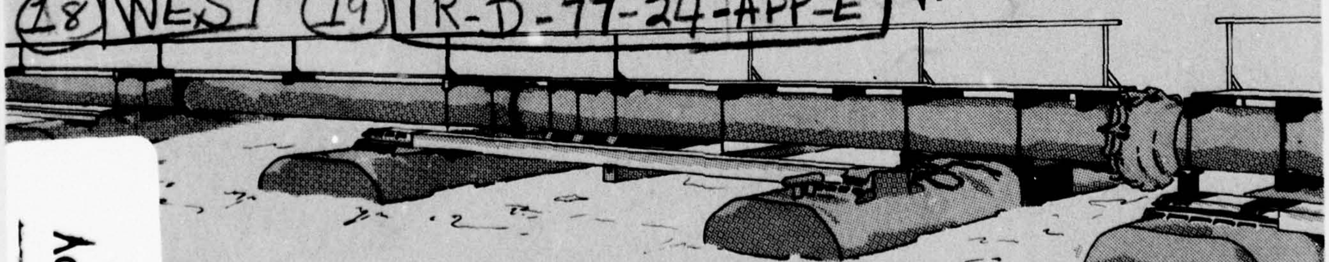
12 553p.

11 January 1978

9 Final Report.

Approved For Public Release; Distribution Unlimited

18 WES 19 TR-D-77-24-APP-E



78 06 20 007

Prepared for Office, Chief of Engineers, U. S. Army
Washington, D. C. 20314

Under Contract No. 15 DACW39-76-C-0167
(DMRP Work Unit No. 1A10D)

Monitored by Environmental Effects Laboratory
U. S. Army Engineer Waterways Experiment Station
P. O. Box 631, Vicksburg, Miss. 39180

370 280

JOB

AQUATIC DISPOSAL FIELD INVESTIGATIONS
DUWAMISH WATERWAY DISPOSAL SITE
PUGET SOUND, WASHINGTON

DEPARTMENT OF THE ARMY
WATERWAYS EXPERIMENT STATION, CORPS OF ENGINEERS
P. O. BOX 631
VICKSBURG, MISSISSIPPI 39180

IN REPLY REFER TO: WESYV

15 March 1978

SUBJECT: Transmittal of Technical Report D-77-24 (Appendix E)

TO: All Report Recipients

1. The technical report transmitted herewith represents the results of one of several research efforts (Work Units) undertaken as part of Task 1A, Aquatic Disposal Field Investigations (ADFI), of the Corps of Engineers' Dredged Material Research Program (DMRP). Task 1A is a part of the Environmental Impacts and Criteria Development Project (EICDP), which has as a general objective determination of the magnitude and extent of effects of disposal sites on organisms and the quality of surrounding water, and the rate, diversity, and extent such sites are recolonized by benthic flora and fauna. The study reported on herein was an integral part of a series of research contracts jointly developed to achieve the EICDP general objective at the Duwamish Waterway Disposal Site, one of five sites located in several geographical regions of the United States. Consequently, this report presents results and interpretations of but one of several closely interrelated efforts and should be used only in conjunction with and consideration of the other related reports for this site.

2. This report, Appendix E: Release and Distribution of Polychlorinated Biphenyls Induced by Open-Water Dredge Disposal Activities, is one of seven appendices published relative to Waterways Experiment Station Technical Report D-77-24 entitled: Aquatic Disposal Field Investigations, Duwamish Waterway Disposal Site, Puget Sound, Washington. The titles of all appendices of this series are listed on the inside front cover of this report. The main report will provide additional results, interpretations, and conclusions not found in the individual appendices and will provide a comprehensive summary and synthesis overview of the entire project.

3. The purpose of this study, conducted as Work Unit 1A10B, was to collect data pertaining to the release of polychlorinated biphenyls (PCB's) from contaminated sediment from the Duwamish River to the water column at the Elliott Bay disposal site. The authors also assessed the mobility of the dredged material at the disposal site and discuss the physical and chemical variables that could affect the release of

78 06 20 007

PCB's from the dredged material to the water, suspended particulate matter, or other sediments. Environmental samples consisting of whole water, suspended particulate matter, and sediments were obtained prior to the dredging operation from the Duwamish River and the Elliott Bay disposal site. Similar samples were collected during and after the disposal operation. These samples were analyzed by electron capture gas chromatography methods described in detail in Appendix E of the main report. The data revealed that the sediment from the Duwamish River was contaminated with PCB's; however, the release of PCB's to the water column during disposal was shown to be a highly transient event associated with the temporary increase in suspended particulate matter due to the disposal operation.

4. Duwamish sediment contained PCB's at concentrations as high as 7 mg/kg (ppm). The levels of total (particulate and dissolved) PCB's in the water column during the disposal operation increased from approximately 3 ng/ℓ (parts per trillion) to 3 μg/ℓ (parts per billion) in some cases. These increases, however, were detected for only a few minutes after dumping. Sediments at the disposal site increased from about 0.5 to 3.0 mg/kg after the disposal operation. There was evidence from the data that the deposited material was spreading outward over the disposal site.

5. The results of this study are important in determining placement of dredged material for open-water disposal. Referenced studies, as well as the ones summarized in this report, will aid in determining the optimum disposal conditions and site selection for either the dispersion of the material from the dump site or for its retention within the confines of the site, whichever is preferred for maximum environmental protection at a given site.

John L. Cannon

JOHN L. CANNON
Colonel, Corps of Engineers
Commander and Director

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
Technical Report D-77-24		

4. TITLE (and Subtitle)

AQUATIC DISPOSAL FIELD INVESTIGATIONS, DUWAMISH WATERWAY DISPOSAL SITE, PUGET SOUND, WASHINGTON; APPENDIX E: RELEASE AND DISTRIBUTION OF POLYCHLORINATED BIPHENYLS INDUCED BY OPEN-WATER DREDGE DISPOSAL ACTIVITIES

5. TYPE OF REPORT & PERIOD COVERED

Final report

6. PERFORMING ORG. REPORT NUMBER

7. AUTHOR(s)

Spyros P. Pavlou, Robert N. Dexter, Wilson Hom, Andrew J. Hafferty, Katherine A. Krogslund

8. CONTRACT OR GRANT NUMBER(s)

Contract No. DACW39-76-C-0167

9. PERFORMING ORGANIZATION NAME AND ADDRESS

Department of Oceanography
University of Washington
Seattle, Washington 98195

10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS

DMRP Work Unit No. 1A10D

11. CONTROLLING OFFICE NAME AND ADDRESS

Office, Chief of Engineers, U. S. Army
Washington, D. C. 20314

12. REPORT DATE

January 1978

13. NUMBER OF PAGES

546

14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)

U. S. Army Engineer Waterways Experiment Station
Environmental Effects Laboratory
P. O. Box 631, Vicksburg, Miss. 39180

15. SECURITY CLASS. (of this report)

Unclassified

15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

Appendices A'-E' to this volume ~~were~~ are reproduced ~~in microfiche~~ and [redacted] attached ~~inside~~ to the back [redacted] of this report.

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Disposal areas
Dredged material
Dredged material disposal
Duwamish Waterway
Field investigations
Polychlorinated biphenyls
Sediment

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report presents a detailed discussion of the results obtained in a study conducted to evaluate the release of polychlorinated biphenyls (PCB's) during open-water disposal of contaminated dredged material in Elliott Bay, Puget Sound, Washington. The specific information provided consists of the following:

a. A documentation of the release of PCB's from the dredged material to the water column during and after disposal of

(Continued)

Cont

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. ABSTRACT (Continued).

contaminated sediments from the Duwamish River.

b. An evaluation of the spatial and temporal trends in PCB levels at the disposal site and its immediate vicinity.

c. An examination of the dependence of PCB residues measured in water, suspended particulate matter (SPM), and sediments on physical and chemical variables (appropriate to each marine phase examined) which might affect the accumulation and release characteristics of these chemicals from the disposed material.

d. An assessment of the change in the distribution characteristics of PCB's in the impact zone as compared to the prevailing ambient conditions in the area prior to disposal.

Appendices A'-E' to this volume present the raw data tables, descriptions of materials and techniques, along with the computer program used for PCB data reduction and a sample input and output. The appendices were reproduced in microfiche and are enclosed in an envelope attached inside the back cover of this report.

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

THE CONTENTS OF THIS REPORT ARE NOT TO BE USED FOR ADVERTISING, PUBLICATION, OR PROMOTIONAL PURPOSES. CITATION OF TRADE NAMES DOES NOT CONSTITUTE AN OFFICIAL ENDORSEMENT OR APPROVAL OF THE USE OF SUCH COMMERCIAL PRODUCTS

SUMMARY

The potential for adverse impacts associated with open-water disposal of contaminated dredged material is well recognized. However, the physical and chemical behavior of toxic trace constituents in these sediments during disposal operations is poorly understood, thus making regulatory criteria development an extremely difficult process.

The objective of the study reported herein was to investigate the release and translocation of polychlorinated biphenyls (PCB) associated with the disposal of contaminated sediments from the Duwamish River in Elliott Bay, Puget Sound, Washington.

Based on a detailed analysis of the data obtained during the field program, the most significant findings of this study are outlined below:

- a. The material dredged from the Duwamish River contained PCB's as high as 7 mg/kg, a level substantiallly higher than anticipated for this area of the river. It is unknown whether these high levels represent historic loading which has gone undetected or is recent input.
- b. The primary release of PCB's in the water column during disposal was a highly transient event associated with the temporary increase in suspended particulate matter introduced by the dumping operation. PCB concentrations in the water column increased during the dumping events from about 3 ng/l to as high as 3 μg/l. These extreme values were observed only for a few minutes after dumping.
- c. A less dramatic increase in PCB levels, to about 10 ng/l, was observed one week after the cessation of dumping at the study site. Within one month, water column PCB levels returned to predisposal concentrations.
- d. Long-term elevations of PCB concentrations due to dumping were localized within the sediments of the disposal zone. The values for the surface sediments increased from approximately

0.5 mg/kg to about 3 mg/kg. No dispersal or mobilization of the PCB was observed during the monitoring period.

e. A continuous slumping and spreading of the deposited material was indicated by tracing the changes of the PCB distribution over time. The increasing concentrations in the surface sediments over time and the apparent burial by the highly contaminated materials of the periphery of the disposal zone provided evidence of this occurrence.

It is anticipated that the results of this study, coupled with the physical and biological investigations conducted in the area over the same monitoring period, will provide a basis for a realistic evaluation of the environmental impacts of open-water dredged material disposal operations. These will assist in establishing environmentally sound management strategies for future dredged material discharge activities.

PREFACE

This report presents the results of an investigation to determine the release and distribution of polychlorinated biphenyls during the open-water disposal of contaminated sediments in Elliott Bay, Puget Sound, Washington.

The research was performed as a component of the Environmental Impacts and Criteria Development Project (EICDP) of the Dredged Material Research Program (DMRP), for the Office of the Chief of Engineers. It was supported by the U.S. Army Engineer Waterways Experiment Station (WES), Environmental Effects Laboratory (EEL), Vicksburg, Mississippi, under Contract No. DACW 39-76-C-0167 to the Department of Oceanography, University of Washington, Seattle, Washington. The sampling program for the project was conducted in conjunction with an ongoing project sponsored by the U.S. Environmental Protection Agency, Grant No. R-800362, Dr. S. P. Pavlou, Principal Investigator.

The work was accomplished by Dr. Pavlou and his research group consisting of Dr. R. N. Dexter, Messrs. W. Hom and A. J. Hafferty, and Ms. K. A. Krogslund.

The EEL Project Manager was Mr. J. H. Johnson, under the supervision of Dr. R. M. Engler, Manager of the EICDP.

The entire DMRP is administered by the EEL at WES under the general supervision of Dr. John Harrison, Chief, EEL. Director at WES during the study and preparation of this report was Col. J. L. Cannon, C.E. Technical Director was Mr. F. R. Brown.

TABLE OF CONTENTS

Appendix A':* Tabulation of Chemical Data

Appendix B': Description of the Large Volume Filter

Appendix C': Spectral Analysis Technique

Appendix D': Data Reduction

Appendix E': Hydrography Data List and Depth Profiles

*Appendices A'-E' to this volume were reproduced in microfiche and are enclosed in an envelope attached inside the back cover of this report.

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES
(Continued)

CONVERSION FACTORS, U.S. CUSTOMARY TO

METRIC (SI) UNITS OF MEASUREMENT

U.S. customary units of measurement used in this report can be converted to metric (SI) units as follows:

Multiply	By	To Obtain
inches	25.4	millimetres
miles (U.S. nautical)	1.852	kilometres
miles (U.S. statute)	1.609344	kilometres
cubic feet per second	0.02831685	cubic metres per second
cubic yards	0.7645549	cubic metres
gallons (U. S. liquid)	3.785412	cubic decimetres

AQUATIC DISPOSAL FIELD INVESTIGATIONS,

DUWAMISH WATERWAY DISPOSAL SITE, PUGET SOUND, WASHINGTON

APPENDIX E: RELEASE AND DISTRIBUTION OF POLYCHLORINATED BIPHENYLS INDUCED BY OPEN-WATER DREDGE DISPOSAL ACTIVITIES

PART I: INTRODUCTION

1. Compared to some other inland waters of the United States, Puget Sound is considered to be a relatively pristine system with respect to toxic substances. The area is largely undeveloped and does not receive excessive quantities of municipal and industrial effluents as is the case with other major estuaries in the country. In addition, riverine fresh water input coupled with tidal action results in rapid dilution and flushing of pollutants from the system. In April, 1972, a project was initiated to study the distribution of chlorinated hydrocarbons in the region under support from the Environmental Protection Agency, Grant No. R-800362. The first samples were collected from Elliott Bay and when analyzed they revealed the presence of significant quantities of polychlorinated biphenyls (PCB).

2. Since that time the presence of these chemicals has been documented in all areas of the Sound. In general, the PCB concentrations were found to correlate with sites of increased industrial and municipal activity with no apparent temporal trends. The highly industrialized Duwamish

Estuary contained the highest PCB concentrations observed in the Sound. Elliott Bay, which receives the Duwamish River discharge, also was found to contain elevated PCB levels showing a spatial distribution in surface sediments which decreased with distance from the mouth of the river. A more detailed discussion on these aspects have been presented elsewhere.[1, 2, 3]

3. A thorough examination of the PCB levels in the sediments of Elliott Bay and the Duwamish River indicates that the history of PCB input into this area has been somewhat sporadic over a fairly long period of time. Sediment cores often show marked differences in both the PCB types and their total concentrations as a function of core depth (1 cm horizon).

4. Recently, the lower Duwamish River received a substantial input of PCB's when a transformer was cracked while being loaded onto a barge. Virtually the entire contents (250 gallons) of nearly pure PCB (Aroclor 1242) were spilled into the river. The majority of this material was recovered initially by small, diver-operated suction dredging, followed by a major hydraulic dredging effort which removed the sediments from the entire affected area to a diked upland disposal site. These operations were monitored to evaluate the release of PCB into the river from resuspended contaminated sediments. The mean concentrations of PCB's during the monitoring period were within the ranges normally observed in the river, suggesting that the dredging operations did not induce a significant PCB pulse of potential hazard to the estuary.[4]

5. During the course of these studies, part of the research effort has been directed to defining the important factors which affect the

transport of PCB within marine environments and the distribution of these compounds between the various components of the ecosystem (water, suspended particulate matter, plankton, and sediments). The results indicate that, in general, the PCB's are distributed by equilibrium partitioning between the water and the other components. Within the context of the present investigations, these observations have some important connotations with respect to the environmental impact associated with open-water disposal of dredged mateial. Sediments that have accumulated significant quantities of PCB's in a relatively contaminated area may subsequently re-equilibriate by releasing the bound PCB as a result of the relocation of the sediments into a less contaminated area, i.e., the trap may become the source. More specific considerations are as follows:

a. During open-water disposal, the PCB's that are bound to the sediments have an increased exposure to the relatively uncontaminated water which may result in their dissolution, and in turn can impose an immediate hazard to some organisms by direct uptake from the water column.

b. The resuspension and dispersion of fine material from the contaminated sediments may also present a hazard for some organisms such as filter feeders.

c. The sediments deposited at the disposal site may constitute a long term source of contamination to the system, both via uptake by benthic organisms and via desorption and dissolution into the water column.

6. This report presents a detailed examination of the above aspects based on data obtained from the field program. The primary emphasis is placed on the evaluation of spatial and temporal trends of the PCB levels in the sediments and the water column within the disposal zone. It is

anticipated that the interpretations and conclusions drawn from this analysis will be incorporated into the overall considerations in assessing the environmental effects associated with open-water disposal of dredged materials and in establishing realistic management practices. Appendices A'-E' to this volume present the detail data matrix, descriptions of methods and materials, along with the computer program and sample of the input/output used for PCB data analysis. The appendices were reproduced in microfiche and are enclosed in an envelope attached inside the back cover of this volume.

PART II: DESCRIPTION OF STUDY AREA

Regional Characteristics

7. Elliott Bay is situated midway on the eastern shore of the central basin of Puget Sound (Figure 1). The surface area of the bay is approximately 14.4 km^2 and is defined by Magnolia Bluff as its northwest boundary and on the southwest by the Duwamish Head. The total volume of the bay comprises approximately 1.0% of the total volume in the Main Basin[5] and 0.5% of the entire Puget Sound volume. Bottom topography is characterized by steep marginal shore slopes around an internal basin of about 130 m in depth. This basin slopes gently to the northwest until it merges with the central Puget Sound basin.

8. The southern portion of the bay is divided into two smaller basins by a bottom ridge which slopes northwesterly from the northern end of Harbor Island and extends to the center of the bay. This ridge may represent a delta built by the Duwamish River which discharges into the southern portion of the bay.

9. The current structure in Elliott Bay has received little study. It appears that tide fluctuations (3.2 m mean tide range) generate a weak, generally counterclockwise, flow in the upper layers (< 50 m) of the bay, with water from the main basin entering around Duwamish Head. While deep water exchange between the bay and the main basin has no topographic restrictions, circulation in the deep layers is probably limited except during periods of deep water renewal within the entire Puget Sound system.

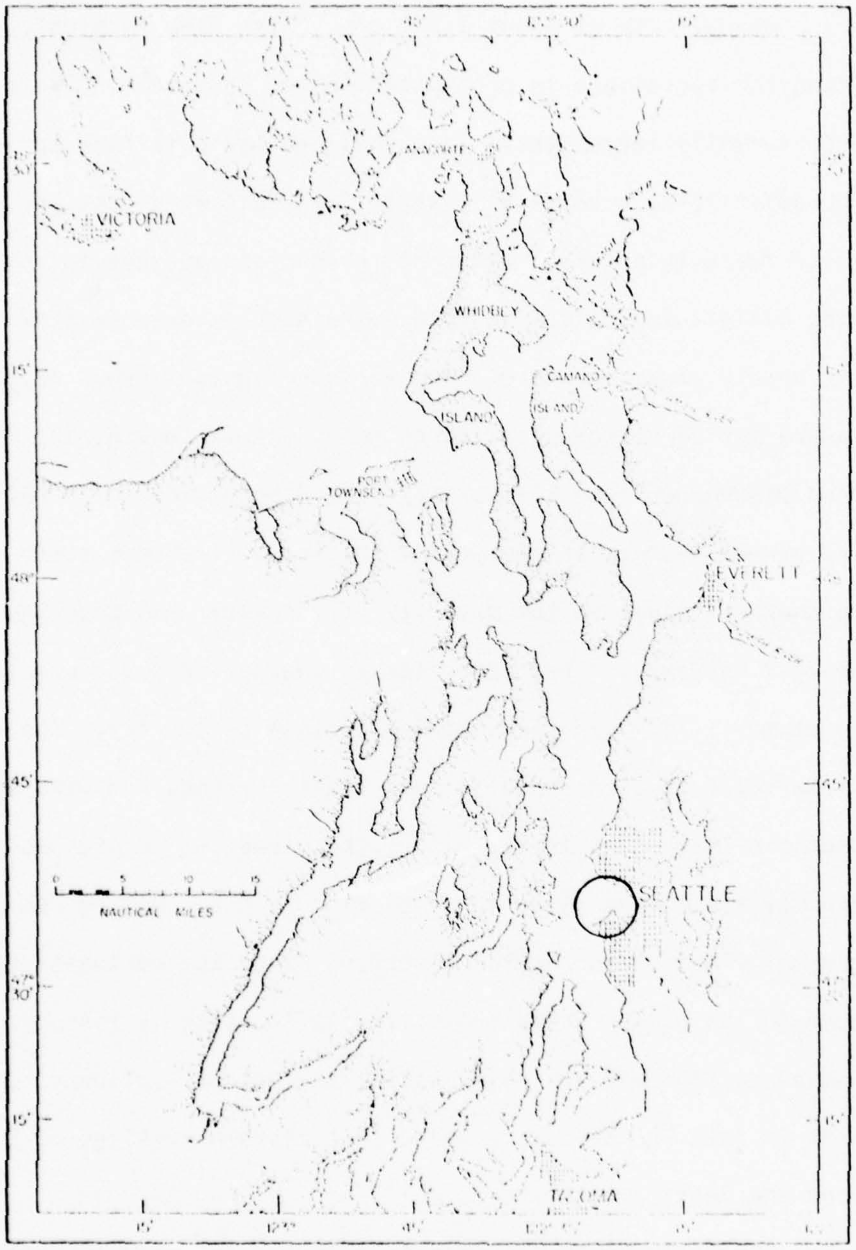


Figure 1. Geographical Location of Elliott Bay, Puget Sound, Washington (encircled area).

10. The Duwamish River provides freshwater input to Elliott Bay at an average annual rate of about 1,300 cfs.[6] The flow is highly seasonal, reflecting the variations in precipitation and snow melt. The river discharge normally increases in late fall and again in late spring. The lower Duwamish forms a vertically stratified salt-wedge estuary with net outflow of fresh to brackish water at the surface and net inflow (upriver) of saline Elliott Bay water at depth. The highly variable flow of freshwater is nearly always seaward. However, the instantaneous movement in both layers may be either up or downstream. At its mouth, the river is split and discharges into Elliott Bay around both sides of Harbor Island. Dredging of the western channel and a shallow sill at the south end of the eastern channel result in the majority of the water exchange taking place via the West Waterway. The freshwater discharge forms a low salinity surface plume (1-15 m) in the southern portion of the bay. The behavior of this plume reflects a response to both tidal currents and wind stress. In the absence of strong southerly winds, the plume is "compressed" into the southern bay around the river mouth by flood tides. During ebb tides, the plume normally drifts northward, spreading along the northeastern waterfront and following the shoreline until its identity is lost by mixing with Puget Sound surface water. As a result, the primary influence of the river discharge is felt in the southern and southeastern portions of Elliott Bay and along the Seattle waterfront.

11. The lower Duwamish River is a navigable waterway, routinely dredged at three to four year intervals to maintain channel depths of 10 to

15 m. The lower river is highly industrialized and receives significant quantities of industrial wastes, as well as some municipal wastes discharged by the sewage treatment plant at Renton, Washington.

Description of Study Site

12. The total volume of dredge material disposed in Elliott Bay for the purpose of this study was approximately 114,000 $m.^3$ The source of these sediments was a 1.88 km stretch of the upper Duwamish Estuary between river miles 3.90 and 5.07 (Figure 2). Previous studies in this area have established that the sediments of the entire Duwamish Estuary are contaminated with PCB.[2, 4, 7] However, the area of the river dredged has a rapid sedimenta[illegible]d is upstream of most industrialization. It was anticipated therefore that these sediments would not be grossly contaminated.

13. The disposal buoy was located over the 60 m depth isoline due north of the mouth of the West Waterway (47° 35' 41" N; 122° 21' 42" W) and the disposal site station grid (1-16) comprised an area of 0.98 km^2 with the disposal buoy as its center point. The two reference sites were also located over 60 m of water and positioned east and west of the disposal site as shown in Figure 2. The west reference site has received historically the least impact from the municipal, commercial and industrial activities of the Seattle area. Water flow over this location originates primarily from the main basin of Puget Sound rather than from the interior of Elliott Bay. On the other hand, the east reference site has received effluents from the Duwamish River, an unknown contribution from shipping

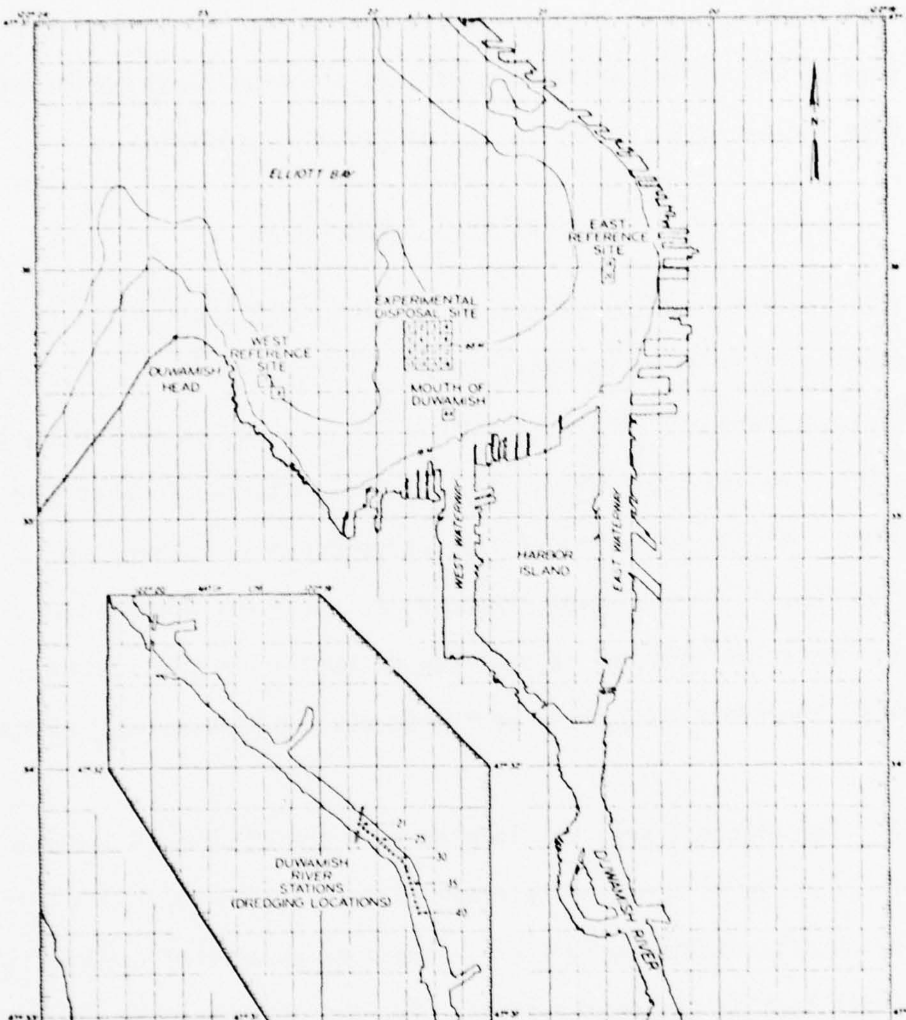


Figure 2. Location of the Dredge and Disposal Sites in Elliott Bay and the Duwamish River, Puget Sound, Washington.

and nearby shore-based activities, as well as from a number of contaminated materials originating from sewage overflow discharges along the Seattle waterfront.

Literature Review

Regional studies

14. No other study on the environmental impact of PCB's released during dredge disposal operations in Puget Sound has been conducted to date. Previous studies related to the environmental dynamics of PCB's in the region have been carried out primarily by our laboratory and are appropriately referred to throughout the main body of this report. The only investigation addressing some general aspects of sediment and water quality chemistry related to disposal of dredge spoils in this region has been conducted by Schell, et al.,[8] under support from the Municipality of Metropolitan Seattle (METRO). This project was a minor component of METRO's overall Interim Studies Program designed to assess the dispersion of chemical constituents released from the disposal of 283,000 yd^3 of Duwamish River material at Fourmile Rock, and the coupling of this perturbation to the water quality changes induced by the West Point effluent discharge. The parameters measured were limited to hydrography, nutrients, turbidity, suspended solids, pH (water column), and trace metals in water, suspended particulate matter (SPM), and a few sediment cores. Although the data were considered insufficient to warrant a reliable assessment of the

impact to the ambient chemistry within the disposal zone, it was indicated that the lateral spreading of the dredged material was localized to the immediate vicinity of the disposal site and dilution of the material by the tidal action reduced concentrations of the trace constituents to background levels. It was therefore concluded that no significant effects on the water quality parameters measured were observed.

Other studies

15. In view of the paucity of the data related to environmental effects of PCB's released by open-water disposal activities, a literature search was conducted through the computerized bibliographic services available at the University of Washington's libraries to assembly information obtained in any similar studies conducted elsewhere. The search was carried out using the POLLUTION data base on the SDC/ORBIT system and by coupling PCB with the following keywords: DREDGING, POLLUTANT DISPOSAL, SOLID WASTE DISPOSAL, OCEAN DUMPING, DISPOSAL IMPACT, SEDIMENT TRANSPORT corresponding to pertinent processes, SEDIMENTS, SUSPENDED SOLIDS, and DREDGE SPOIL for material; and BENTHOS, BAYS, BRACKISH WATER, COASTAL WATERS, COASTAL ZONES, DISPOSAL SITES, MARINE ENVIRONMENTS, ESTUARIES for identifiers of locations.

16. The search produced only one article of interest which summarizes the environmental impact associated with the dredging and disposal of contaminated materials in a stratified fjord of the west coast of Sweden.[9] A brief summary of relevance to the Elliott Bay disposal project follows.

17. The disposal material ($2 \times 10^6 m^3$) originated from pipeline dredging associated with the extension of the Uddevalla Shipyard and consisted of clay material highly contaminated with PCB (0.7-7 ppm) and mercury (1-6 ppm). The total amount of PCB in the spoil was 53 kg, contained mainly at the surface layer (3% of the total spoil volume) of the sediments. The material was disposed below the permanent pycnocline of Byfjorden (usually between 11 and 20 m depth) at the deepest part of the region (50 m), which is normally anoxic. Although the author stated that the polluted material was buried by subsequent disposal of unpolluted sediments, thus minimizing long term impact, no detailed justification for these conclusions was provided.

PART III: METHODS AND MATERIALS

General Considerations

18. This section provides a detailed discussion of the sampling, analytical, and data reduction methodology employed to complete the objectives of the project. The procedures described herein were designed to ensure the quality control required to establish a reliable data bank for assessing the impact of introducing PCB-contaminated dredged material in the water column and sediments of the disposal zone.

Sampling Scheme

19. The impact of the disposal operations on the water column was examined by monitoring concentrations of PCB in samples of whole water and suspended particulate matter (SPM) collected prior, during and following disposal. Basin hydrographic parameters (salinity, temperature, and dissolved oxygen) were also measured to describe the water mass movement within the study area. A similar scheme was established for the sediments. Samples were collected both in the river and disposal area prior to dredging, followed by extended monitoring during the disposal operations and after they were terminated.

20. The sampling schedule is presented in Table 1. Sediment samples were collected approximately 10 days prior to the initiation of dredging (cruises 35 and 37). Only water and SPM samples were collected during the disposal operation (cruises 55 and 57), and immediately after the cessation

TABLE 1

Sampling Schedule by Cruise Numbers for the Elliott Bay Dredge Disposal Project

Sample Type	Date*									
	Pre-Disposal (Phase II)		Disposal (Phase III)		Post-Disposal (Phase IV)					
	35	37	55	57	67	76	99	168**	265**	342**
Water Column										
Whole Water (PCB)			X	X	X	X	X	X	X	X
SPM (PCB)			X	X	X	X	X	X	X	X
HYDRO (S, O, Temp.)						X	X	X	X	X
Sediments										
Whole Core										
PCB	X	X				X	X	X	X	X
Oil and Grease	X	X				X	X	X	X	X
TOC									X	X
Interstitial Water		X				X				
Elutriate	X									

* The numbers are the Julian dates.
** Water and SPM samples were collected on dates 170, 266, and 343.

of dumping (cruise 67). Water, SPM, and sediment samples were collected at intervals of ten days (cruise 76), one month (cruise 99), three months (cruises 168 and 170), six months (cruises 265 and 266), and nine months (cruises 342 and 343) after disposal ceased.

21. The station locations are shown in Figure 2. The center of the dump-site station grid (stations 1-16) was marked by an anchored buoy which served as the reference point for the disposal and the dump-site stations. Reference sites were established, one on the east side of the bay (stations 19 and 20) and one on the west side (stations 17 and 18). Station 44 was also occupied as a reference for monitoring the water column quality associated with the Duwamish River discharge.

Water column

22. Samples of whole water and SPM for PCB analyses were collected at three depths for each station: at the surface (0-1 m), intermediate depth (10 m from bottom), and deep (1 m from the bottom). Throughout Phase III (cruises 55 and 57), replicate water samples were collected at the reference sites (stations 17, 19, and 44) both before and after each daily series of disposals. During the actual disposal operation, a time series of water and SPM samples was collected at the center of the grid (station 6). A detailed sampling scheme for the Phase III cruises is presented in Table 2.

TABLE 2

Sampling Scheme for Disposal Monitoring Cruises
(Phase III, Cruises 55 and 57)

Station	Time	Number of Samples Collected Whole Water	SPM
17, 19, 44	BD*	2(R)+	
6	-30-1++	1	1
	0-1	1	1
	30-1	1	1
	60-1	1	1
	90-1	1	1
	0-2	1	1
	30-2	1	1
	60-2	1	1
	90-2	1	1
	0-3	1	1
	30-3	1	1
	60-3	1	1
	90-3	1	1
17, 19, 44	AD**	2	

* Before disposal.

\+ R denotes replicate sample.

++ The time is expressed in minutes relative to the disposal episodes monitored on each of the Phase IV Cruises. t = 0 refers to the "dump" time.

** After disposal.

23. During the first two Phase IV cruises (67 and 76), replicate water and SPM samples for PCB analysis were collected at the disposal site (stations 6 and 10). Replicate water samples were also collected at the reference sites (stations 17, 19, and 44). For the last four post-disposal cruises (99, 168, 265, 342), replicate water and SPM samples were taken at all stations (stations 6, 10, 17, 19, and 44).

Sediments

24. Sediment samples were collected during the pre-disposal monitoring (Phase II, cruises 35 and 37) and during Phase IV (cruises 76, 99, 168, 265, 342). For cruise 35, sediments were obtained from 19 stations (stations 21-39) located in the section of the Duwamish River that was subsequently dredged (Figure 2). Depending on the penetration of the core tube, single samples of variable length were taken. On cruise 37, replicates of the upper 10 cm of the cores were collected at all stations in Elliott Bay (stations 1-20, Figure 2). On the post-disposal cruises, replicate cores were taken at each station. These cores were sectioned and both an upper horizon (from the sediment/water interface to 10 cm deep in the core) and a lower horizon (sediments deeper than 20 cm in the core) were collected.

25. Hydrographic measurements were conducted by this laboratory only during the last five Phase IV cruises (76, 99, 170, 266, 343) at both the reference (17, 19, and 44) and grid stations (6 and 10). River water depths sampled at each station were: 1 m, 5 m, 10 m, 10 m above bottom, and 1 m above bottom.

Shipboard Procedures

Water column

26. Whole water and SPM samples were collected with 53-liter, stainless steel samplers,[10] modified by the replacement of the drain valve with a one half inch stainless steel Swagelok® quick disconnect. Approximately four liters of water were transferred from the sampler through a teflon-lined neoprene tube directly to solvent-rinsed glass jugs. Pesticide grade hexane was immediately added and the jugs sealed with teflon-lined screw caps.

27. The remaining volume of water ($\sim$49 liters) was drawn through a pre-combusted 8" by 10" glass fiber filter (Reeve Angle 934 AH) using a large volume filter system (LVF) designed specifically for the collection of particulate PCB samples. A detailed description of this system is included in Appendix B'. Upon completion of filtering, the filters were transferred to solvent-rinsed glass jars, sealed with aluminum foil-lined screw caps, and stored frozen until processing and analysis.

Sediments

28. Sediment samples were collected using either a single or double barrel gravity corer with two inch fiberglass core liners. Samples for PCB analysis were extruded on board ship directly into solvent-rinsed glass jars, sealed with aluminum foil-lined screw caps, and stored frozen until processing and analysis. In the laboratory the samples were homogenized and aliquots prepared to determine the following:

a. PCB concentrations in the total core.

b. PCB concentrations in the interstitial water (cruises 37 and 76).

c. Potential PCB release as indicated by the modified elutriate test.

d. Oil and grease concentrations in the total core.

e. Total organic carbon content (cruises 265 and 342).

A detailed outline of the sediment sampling scheme is presented in Table 3.

TABLE 3

Detailed Sediment Sampling Scheme

Sampling Area	Horizon	Cruise 35	37	76	99	168	265	342
River (21-39)	upper	X						
Disposal Grid	upper		X	X	X	X	X	X
(1-16)	lower		X	X	X	X	X	X
West Reference	upper		X	X	X	X	X	X
(17, 18)	lower			X	X	X	X	X
East Reference	upper		X	X	X	X	X	X
(19, 20)	lower			X	X	X	X	X

Hydrography

29. Hydrographic samples were collected by standard oceanographic techniques using five liter PVC Scott-Richard bottles fitted with reversing thermometers. Samples were drawn for the determination of salinity and dissolved oxygen.

Chemical Analysis

30. The techniques developed in this laboratory for the analysis of chlorinated hydrocarbon (CH) residues in natural samples are based on established methods,[11, 12, 13] appropriately modified to accommodate specific types of samples. All procedures consisted of the same four basic steps:

a. Extraction of the residues from the sample matrix using organic solvents.

b. Removal of co-extracted interfering organic material.

c. Analysis of the sample extract by electron capture gas chromatography (EC/GC).

d. Spectral analysis and final data reduction.

Steps c and d were identical for all sample types and are discussed separately.

Processing of samples for PCB analysis

31. Whole Water. The extraction and clean-up procedures for whole water samples are basically those of Thompson.[11] A teflon-coated magnetic stirring bar was added to the jug containing the water sample and the

hexane which was added during sample collection. The jug was placed on a magnetic stirrer and a strong vortex maintained for approximately 20 minutes to ensure sufficient dispersion of solvent and maximum sample-solvent contact. The phases were allowed to separate until both were clean (~ 20 minutes). The hexane phase was drawn off by vacuum through a teflon tube into a one liter separatory funnel. The stirring-extraction process was repeated two times with additional 100 ml aliquots of hexane. Any water brought over into the separatory funnel while collecting the hexane layers was drained into a graduated cylinder and combined with the remainder of the sample for an accurate volume determination. The sample was then discarded.

32. The combined hexane extracts were eluted through a drying column containing pre-combusted anhydrous Na_2SO_4 and transferred into a one liter Kuderna-Danish evaporative concentrator (KD) equipped with a three-ball Snyder column. The solvent volume was reduced to approximately 5 ml on a water bath. The reduced extract was then transferred quantitatively to a glass-stoppered graduated conical centrifuge tube. An equal volume of concentrated H_2SO_4 was added, the tube was stoppered and shaken vigorously for two minutes, and then the mixture was allowed to settle and react for a minimum of 12 hours. The solvent extract was then transferred, either quantitatively or as a measured aliquot, to a second graduated centrifuge tube and saponified by the method of Thompson.[11] After saponification, the sample extract was made up to volume (~ 1 ml) with trimethylpentane (TMP) and was ready for gas chromatographic (GC)

analysis. This procedure was used because the use of TMP reduces the solvent "tailing" during the GC analysis and also minimizes volume changes due to evaporation.

33. SPM The SPM filters were macerated while still frozen or thawing, transferred into a pre-extracted Soxhlet Thimble (Whatman single thickness cellulose), and then extracted for a minimum of 36 hours with pesicide free acetonitrile (Burdick and Jackson "Distilled in Glass," or Mallinkrodt "Nanograde"). The thimbles were pre-extracted with acetonitrile for at least 12 hours prior to use (a number of thimble lots were found to be contaminated with Aroclor 1242 which was effectively removed by pre-extraction). The thimbles were normally re-used for many extractions. The solvent was run through the entire analytical procedure to ensure against residual contamination prior to its first use and at intervals between samples.

34. The acetonitrile extraction was quantitatively transferred to a separatory funnel containing enough distilled water to produce at least a 3:1 dilution. The acetonitrile-water solution was then extracted four times by two-minute shakings with approximately 50 ml of 6% diethyl ether (Et_2O) in hexane. The aqueous layer was discarded and the combined hexane layers dried in a column of pre-combusted anhydrous Na_2SO_4. The solvent volume was reduced to approximately 3 ml in a KD and the reduced extract was quantitatively transferred to a graduated glass-stoppered centrifuge tube. One milliliter of TMP was added and the volume again reduced carefully on the water bath to less than 1 ml. One ml

of concentrated H_2SO_4 was then added to the cooled centrifuge tube. The tube was then stoppered and shaken for one minute. The resulting mixture was allowed to react and the phases to separate for approximately 12 hours. For most of the samples, the acid treatment was usually sufficient to remove interferences and to allow reliable quantitation of the PCB's. For additional cleanup, the samples were saponified.

35. Sediments. The entire sample was thawed, usually in a cold room (< 15°C), and carefully homogenized with a cleaned stainless steel spatula. An appropriate aliquot (4 to 50 g) was transferred to a clean, tared 100 ml Pyrex beaker, weighed, and the beaker covered with aluminum foil. The aliquot was refrozen, freeze-dried, and reweighed. The dried sample cake was then broken up with a spatula and enough hexane was added to just wet the sample but not create a slurry. A portion of precombusted, granular anhydrous Na_2SO_4 was added to the hexane-wet sample in the beaker, mixed carefully into the upper portion of the sample, and transferred to a pre-cleaned Soxhlet thimble. Na_2SO_4 was added repeatedly until all of the sample was transferred. The total volume of Na_2SO_4 used was about fifteen times the volume of dry sediment. The empty beaker was then reweighed to confirm the measurement of dry mass.

36. The sediment-Na_2SO_4 mixture was Soxhlet extracted with 2:1 hexane/acetone (v/v) for at least 12 hours. A small amount of bright copper filings were added to ensure complete sulfur removal. The volume of the eluant was reduced, using a KD, and quantitatively transferred to a graduated, glass-stoppered centrifuge tube. An appropriate volume of

TMP was added and the hexane removed by distillation on a water bath (the centrifuge tube was equipped with a micro Snyder column). An equal volume of concentrated H_2SO_4 was then added and the mixture allowed to react for about 12 hours. Finally, saponification was sometimes required for additional cleanup.

37. Interstitial water. An aliquot of approximately 250 g of the thawed, homogenized sediments was transferred to a clean 300 ml stainless steel centrifuge tube (Sorvall Model 55-3 centrifuge) and spun at 8000 RPM for 15 minutes. The separated interstitial water was carefully decanted and filtered through a pre-combusted glass fiber filter (Reeve Angel 934 AH, 2.5 cm) and collected into a tared 250 ml Erlenmeyer flask. The flask was reweighed to determine the mass of the sample. The flask and its contents were than extracted for PCB analysis by the whole water technique.

38. It should be noted here that many of the samples were unavoidably biased (to an unknown extent) by the inclusion of some of the overlying water with the sediment during collection.

39. Modified elutriate. An aliquot of the thawed homogenized sediment sample was transferred to a clean, graduated cylinder containing 100 ml of filtered seawater. Sufficient sediment was transferred to displace about 200 ml volume, the actual value being accurately determined. The entire content of the cylinder was transferred into a clean glass bottle and 700 ml of filtered seawater was added to the bottle, some of which was used for washing the contents from the graduated cylinder. The bottle was sealed with a teflon-lined screw cap and shaken vigorously

several times over a period of about one hour

40. After standing overnight to allow most of the sediments to settle, the water from the bottle was decanted and filtered through a precombusted glass fiber filter (Reeve Angel 934 AH, 4.5 cm) into a second clean and tared glass bottle. The bottle was reweighed, hexane added, and the sample extracted by the whole water technique.

41. The seawater used in this procedure was collected at 60 m at station 6 of the disposal grid and was analyzed for PCB residues prior to the initiation of the test. Flow schemes for handling and pre-analysis processing of the main sample types are shown in Figures 3, 4, and 5.

Processing of sediment samples for other chemical analyses

42. Oil and grease (OG). A modification of the established technique[14] was used to determine the oil and grease levels in the sediment samples.

43. Approximately 50 g aliquot of the homogenized, freeze-dried sediment sample was transferred to a tared Soxhlet extraction thimble and reweighed. The sample was extracted for 24 hours with 300 ml of hexane. The hexane extract was quantitatively transferred to a Kuderna-Danish evaporator equipped with a tared receiver and a three-ball Snyder column. The extract was carefully reduced to dryness on a hot water bath. The receiver was subsequently vacuum desiccated for 24 hours and reweighed. The amount of hexane extractable was determined by weight difference.

44. Total organic carbon (TOC). Approximately 4 g aliquot of homogenized, freeze-dried sediment was transferred to a tared beaker and

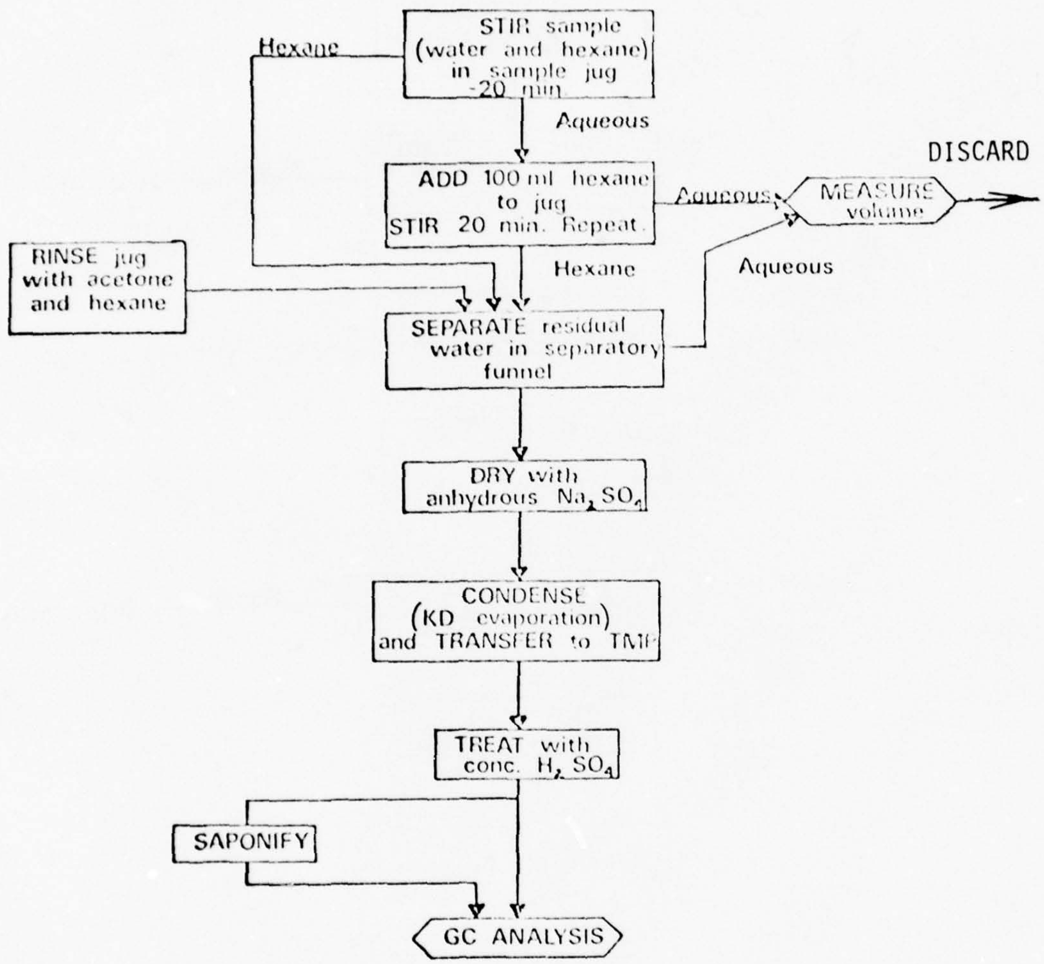


Figure 3. Flow Scheme of Procedures for Whole Water Extraction.

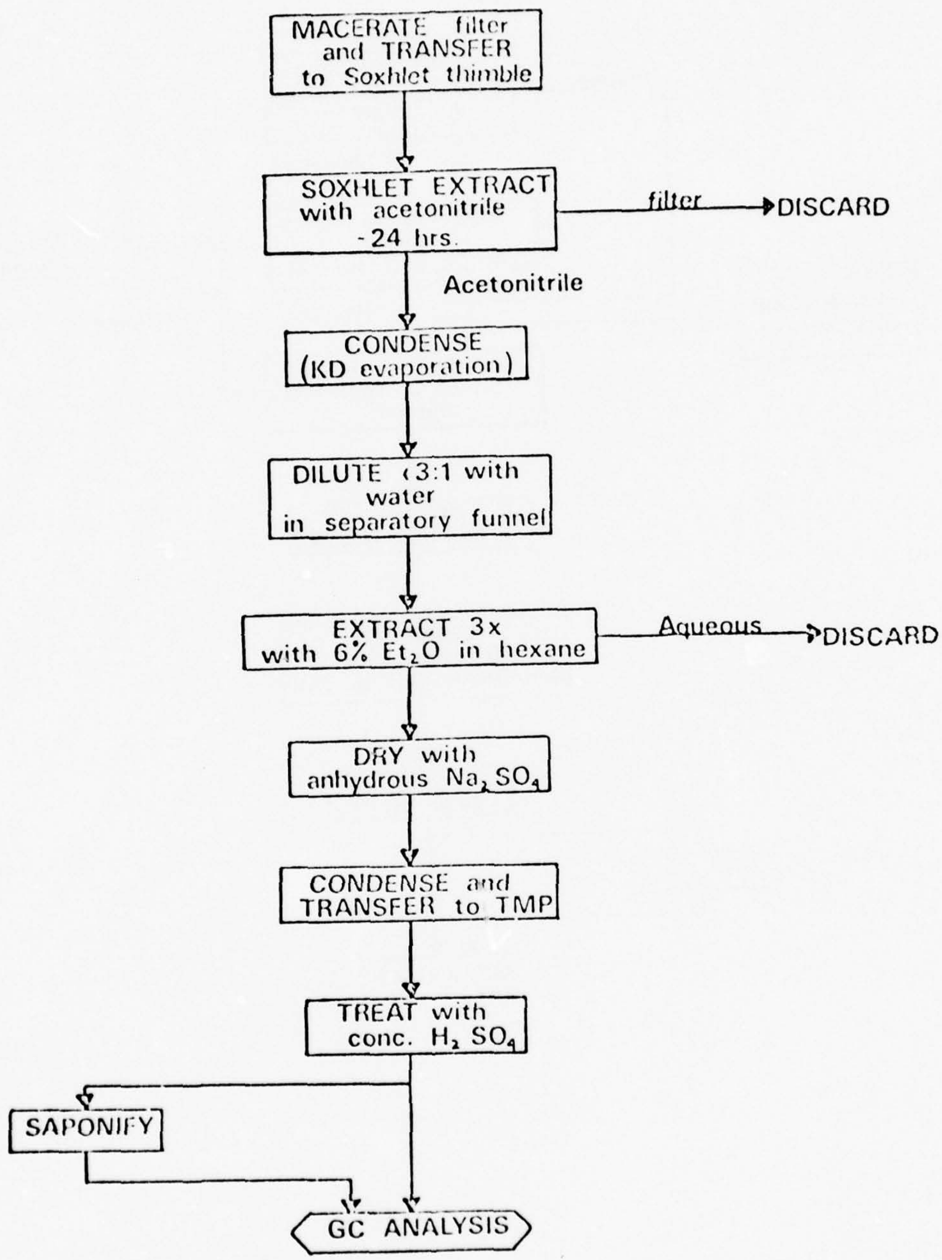


Figure 4. Flow Scheme of Procedures for SPM Extraction.

reweighed. Five milliliters of reagent grade 30% hydrogen peroxide (H_2O_2) was slowly added as the sediment was stirred. The beaker was placed on a warm heating plate (80°C) for several minutes to promote digestion. Frothing was controlled by careful stirring and immersion of the beaker in cold water.

45. After this initial digestion, the beaker was covered with aluminum foil and placed in a 70°C oven for approximately one half hour. The beaker was removed, an additional 5 ml of H_2O_2 solution was carefully added with stirring, and then returned to the oven to complete digestion. The sample remained in the oven until dry. It was then transferred to a desiccator to cool and finally reweighed to determine the mass loss as a result of oxidation of the organic carbon.

46. Although pyrolytic methods, attaining better precision than the technique employed in this work, are often used to determine TOC, the type of sediments analyzed here required the use of H_2O_2 digestion. The Duwamish River Basin drains through rather extensive coal deposits which contribute significant quantities of fine coal fragments to the sediments in the study area. Similar to the inorganic carbonate-carbon, the carbon associated with the coal cannot be included in the "total organic" content of sediments. Most instrumental techniques which rely on high temperature oxidation are inappropriate for these sediments since the coal-carbon would bias the TOC measurement. Although the digestion method normally determines 95% of the actual TOC, it has the advantage of avoiding coal-carbon interference.

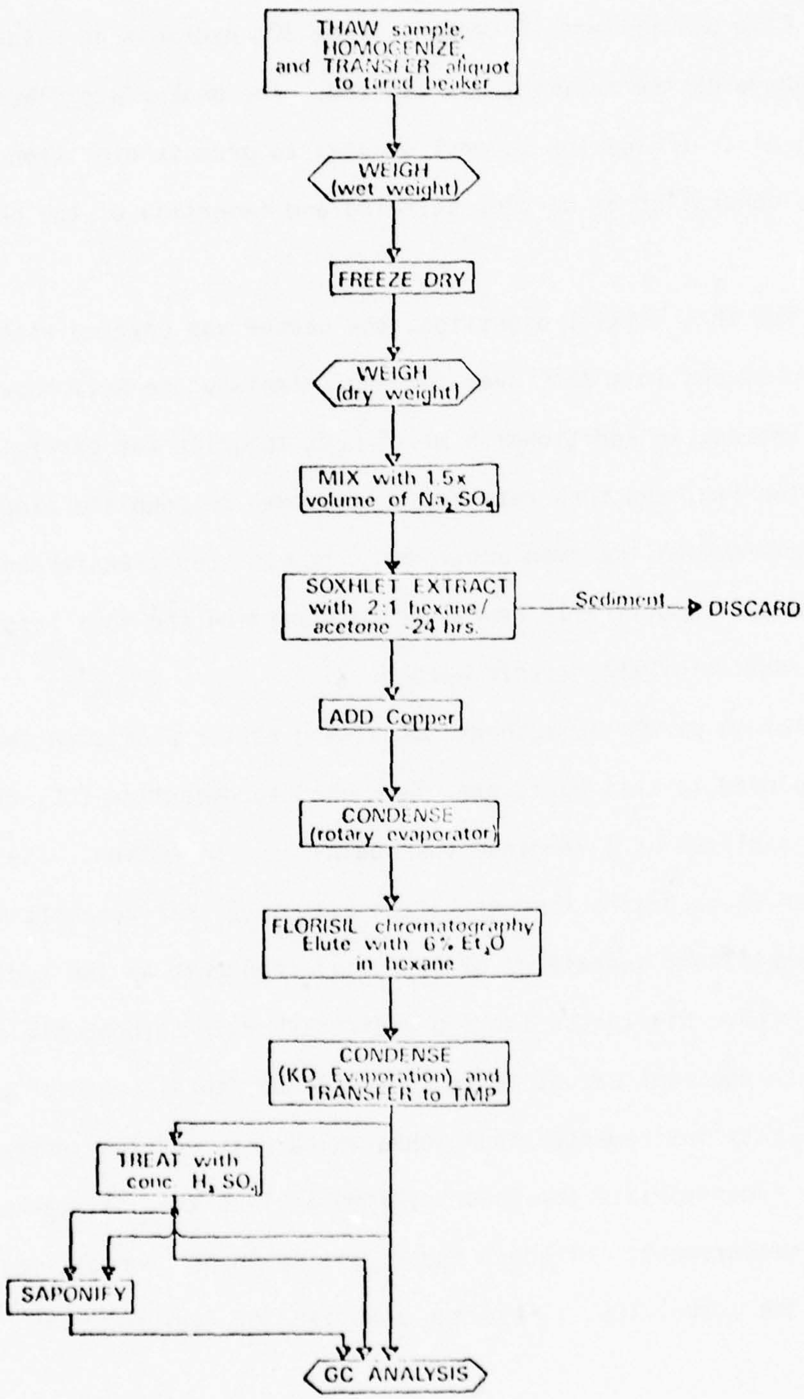


Figure 5. Flow Scheme of Procedures for Sediment Extraction.

Hydrography

47. Hydrographic samples were analyzed by standard techniques. Salinities were determined by an induction salinometer,[15] and dissolved oxygen by the modified Winkler method of Thompson and Robinson.[16] Final data reduction, including the calculation of sigma-t and percent oxygen saturation, was performed on the IBM 1130 computer system at the Department of Oceanography, University of Washington.

Gas Chromatographic Methods of PCB Determination

48. After processing, the final TMP samples' extracts were analyzed by electron capture gas chromatography (EC/GC). All analyses were performed on a Tracor MT-220 gas chromatograph equipped with two ^{63}Ni high temperature electron capture detectors. The columns were 2 m by 2 mm Pyrex glass tubing packed with 1.5% OV-17/1.95% OV-210 on 100-120 mesh Chromosorb W-HP. The carrier gas was a mixture of 5% methane in argon. Spectra were recorded on a Westronics MT-22 strip chart recorder. Peak retention times and areas were determined by a Columbia Scientific Industries Model Supergrater-2 digital integrator. The PCB residues were characterized based on the following criteria:

- a. Only a limited number of organic compounds possess the specific chemical characteristics of PCB's; i.e., low polarity and resistance to both strong acid and alkali degradation required by the pre-analysis processing of samples.
- b. Their retention times must agree with the corresponding peaks in known standards on two different columns.

c. Their relative spectral intensities (peak areas or heights) must resemble the pattern generated by known standards.

d. DDT and DDD are converted to DDE and DDMU, respectively, by ethanolic-KOH dehydrochlorination.

e. The residues from randomly selected samples have been subjected to mass spectrometric analysis (GC/MS) under similar GC conditions. Confirmation of chlorobiphenyl content in these samples was based on the observed mass-fragmentation patterns. Good agreement between GC/MS and EC/GC elution patterns for all sample types provided good evidence of their identity.

49. The components of the PCB mixtures were identified by retention time. For residue confirmation a second column, Silar 10C on 100-120 mesh Gas-Chrom Q, was recently added to the system. This alternative produces strongly different separations for the PCB and pesticides and is advantageous when the elution pattern is greatly altered compared to a standard, or in the presence of interferences not removed by the pre-analysis processing. However, the resolution with this column is not as great, and therefore the column has not been used for primary identification and/or quantitation.

PCB Data Reduction

50. The concentrations of the chlorobiphenyls (CB) were determined by comparing the response of individual peaks via the spectral analysis technique developed as part of our EPA study[17] and are described in detail in Appendix C' to this report. With this technique the concentrations of the residues with the same degree of chlorination, N, could be determined, as well as the total residue content. This computational

scheme was programmed into the CDC 6400 computer system at the University of Washington for automatic data reduction. Detailed computational flow schemes and the program listing, including data inputs and outputs, are presented in Appendix D' of this report.

51. Prior to the final analysis, the raw data for all sample types were evaluated according to the procedures listed below:

- a. Confirmation of GC spectral patterns and initial quantitation.
- b. Internal consistency check of residue values.
- c. Preliminary synoptic assessment of temporal and spatial trends.

52. This procedure was adopted as a preliminary screening for flagging suspect data and detecting gross errors introduced by accidental mishandling of samples, incorrect spectral quantitation, inconsistencies in replication, and contamination during analysis. In this manner, unreasonably large disparities from normal trends over the sampling periods and deviations of the data from historical and predicted behavior in the area could be identified prior to the initiation of statistical treatment and correlation analysis.

Statistical analysis

53. The chemical data generated throughout this project were first examined by a modified split-plot design and analysis technique.[18]

54. Water parameters. For the PCB concentrations in whole water, the dominant variables were station, location, time, and the depth at which

the sample was collected. These variables were incorporated in the model as follows:

a. $Y_{ijk} = \mu + S_i + (SD)_{ij} + T_k + (ST)_{ik} + (SDT)_{ijk} + \varepsilon_{l(ijk)}$

where Y is the sample value, μ refers to the true population mean, with variance due to station (S, with i = 1, 2, 3, 4, 5), depth (D, with j = 1, 2, 3), time (T, with k = 1, 2, 3, 4, 5, 6), and error (ε, with l = 1, 2, replication). SD, ST, and SDT refer to the station by depth interaction, the station by time interaction, and the station by depth by time interaction, respectively. Station locations are considered to be the dominant spatial factor in this design.

b. $Y_{ijk} = \mu + D_j + (DS)_{ji} + T_k + (TD)_{jk} + (DST)_{jik} + \varepsilon_{l(ijk)}$

where Y is the sample value, u refers to the true population mean, with variance due to station (S, with i = 1, 2, 3, 4, 5), depth as the dominant spatial factor.

55. Sediment Parameters. A similar design was used to examine the concentration of PCB and oil and grease in the sediments. In this case

$$Y_{ijk} = \mu + H_i + S_{j(i)} + T_k + (HT)_{ik} + (ST)_{jk(i)} + \varepsilon_{l(ijk)}$$

where H_i refers to subgroups of stations, i.e., the habitats. The other notations are the same as presented above. The habitats were chosen based on initial inspection (visual) of the spatial trends exhibited by Y.

56. The results of these analyses of variance (ANOVA) calculations allowed an initial determination of significant differences in the residue levels either spatially or with time. For all statistical tests the significance level of $\alpha = 0.05$ (95%) was chosen.

57. When factorial analysis indicated that significant discontinuities were present, the means were compared pairwise, either between different habitats within the same cruise (spatial differences), or between cruises within the same habitat (temporal effects). For these analyses the Scheffe multiple comparison procedure was used.[19] The equation is as follows:

$$\text{Test statistics} = \bar{X}_1 - \bar{X}_2 \pm \sqrt{(k-1)F_{(k-1,\nu)}\ \hat{\sigma}^2_{\dagger}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}$$

where $\bar{X}_1$ and $\bar{X}_2$ are the habitats' means being compared; k corresponds to total number of means being compared; F is the ratio of the mean squares at significance level $\alpha = 0.05$ for k-1 and ν degrees of freedom; $\hat{\sigma}^2$ is the appropriate variance (mean square) generated in the factorial analysis; and n_1 and n_2 refer to the number of samples constituting the means.

58. The difference between the means was considered significant when the range of the test statistic was greater or less than zero:

a. When $(\bar{X}_1 - \bar{X}_2) \pm \sqrt{\ } > 0$.

b. Or when $(\bar{X}_1 - \bar{X}_2) \pm \sqrt{\ } < 0$.

Quality assurance

59. The statistical analysis of the data as described previously includes a consideration of the *random error* associated with each data point. The procedures employed in this laboratory to ensure against systematic error or bias affecting results were as follows.

60. The principal source of bias is contamination. For all sample analyses, blanks (comprising approximately 10% of the total number of samples corresponding to a specific type) were run at regular intervals. These blanks were processed by carrying extraction solvents through the entire analytical procedure, but with no sample. At no time was any significant contamination observed in these blanks. The contribution was normally <2% of the lowest sample value.

61. In the PCB analyses, the quantitation was based on direct comparison with standard PCB solutions. Alteration of these standards, e.g., by solvent evaporation, could result in erroneous results. The response data for the standards were stored in computer memory for each chromatographic run. This provided a convenient data base for comparing any changes in the response of the standards with time. No such changes were noted.

62. To determine the errors associated with the make-up of the original standard solutions, or with the computation scheme, an interlaboratory calibration check was performed. Table 4 shows the results of this intercalibration experiment between our laboratory (University of Washington) and Dr. Stout's facilities at the National Marine Fisheries Service (NMFS), Seattle, Washington. Each laboratory exchanged 15 sample extracts which were analyzed and quantified by the techniques used routinely by their respective staffs. The data show that while there were some relatively small differences for some samples, there was no apparent systematic error.

TABLE 4A

Summary of the Intercalibration Results
With The National Marine Fisheries Service
For PCB Analysis of Tissue Samples

Sample No.	PCB (ug/g tissue) UW	NMFS	Fractional Deviation ($\triangle$)
V1758	0.09974	0.164	-0.64
V1760	0.08248	0.107	-0.30
V1772	0.1696	0.168	0.01
V1776	0.1613	0.168	-0.04
V1786	0.7068 $\pm$ 0.0018	0.680	0.04
V1795	0.2528	0.333	-0.32
V1797	0.1302	0.190	-0.46
V1798	0.9905	0.821	0.17
V1801	0.2321	0.291	-0.24
V1803	0.4056	0.524	-0.25
V1804	0.5660	0.593	-0.05
V1841	0.4273	0.265	0.38
V1857V	4.426	3.66	0.17
V1868F	2.095	1.66	0.21
V1908(1:10)	4.782	5.90	-0.23
			$\overline{\triangle}$ = -0.11

$\triangle$ is the fractional deviation and is defined as $\triangle = \frac{UW - NMFS}{UW}$

TABLE 4B

Summary of the Intercalibration Results
With The National Marine Fisheries Service
For PCB Analysis as Sediment Samples

Sample No.	PCB (ug/g dry sediment) UW	NMFS	Fractional Deviation ($\triangle$)
AS 170	0.294	0.398	-0.35
412	0.497	0.341	0.31
413	1.629	0.873	0.46
416	0.476	0.538	0.13
417	0.243	0.347	-0.43
418	1.222	0.659	0.46
421	0.031	0.016	0.48
422	0.184	0.259	-0.41
424	0.029	0.018	0.38
426	0.031	0.019	0.39
427	0.009	<0.012	----
438	0.684	0.550	0.20
441	0.306	0.343	-0.12
442	0.305	0.350	-0.15
443	0.592	0.492	0.17
446	0.574	0.574	0.00
			$\overline{\triangle}$ = +0.08

$\triangle$ is the fractional deviation and is defined as $\triangle = \frac{UW - NMFS}{UW}$

PART IV: RESULTS AND DISCUSSION

63. All chemical data collected in this subproject for all sample types are tabulated in Appendices A' and D' to this volume. For clarity, water column and sediment parameters are discussed separately below.

Water Column Parameters

Hydrography (salinity, temperature, and sigma-t)

64. The salinity, temperature and sigma-t data collected during the post-disposal cruises are tabulated in Appendix D'. Vertical profiles for each station are also included. These data show the common features exhibited by the water column in Elliott Bay; i.e., the relatively thin halocline and pycnocline at the surface, and an essentially uniform water mass in the lower portion of the bay.

65. Seasonal effects are apparent in the excursion of the surface temperatures from about 7.5°C in March of 1976 to about 12°C in June, followed by decreasing temperatures again in the early and late fall.

66. During this particular cruise series, river discharge was much lower than what is commonly observed in normal years, reflecting the unusually low precipitation conditions in the Pacific Northwest during 1976. As a result, the surface low salinity was not well developed and essentially disappeared with the onset of fall cooling and the accompanying surface mixing. By December (cruise 343) nearly all vertical density and salinity structure was lost, exhibiting vertical homogeneity in the

water column.

PCB characteristics

67. The chlorobiphenyls (PCB) concentrations measured in whole water and SPM samples are presented in detail in Appendix A'. The results are examined in two independent sections.

a. In terms of the time series generated during the two cruises where the disposal operations were monitored on a continuous basis.

b. In terms of the six cruise series conducted over a nine month period after disposal had ceased.

68. Time plots of the total chlorobiphenyl (TCB) concentrations at the buoy site during the two disposal monitoring cruises (55 and 57) are shown in Figures 6 and 7. In general the data from both days indicate rather rapid pulses of very high concentrations associated with each of the three large dumping events. The highest concentrations were observed at the bottom depths. These pulses are of very short duration and are within the same time frame of the dumping episodes. After each pulse the ambient concentrations rapidly return to pre-dump conditions. However, on both days there was a significant residual increase after each dump which resulted in an overall but slight increase in TCB levels by the end of each monitoring period. This can clearly be seen by comparing the values at the reference station measured before and after each disposal operation (Table 5). The TCB concentrations measured prior to disposal are of similar magnitude to those observed in earlier studies within the Elliott Bay area, approximately 3 ppt.[2, 3]

69. The temporal and spatial trends were examined over the post-disposal cruise series. The discusion which follows relies primarily on the whole water measurements, since they provide a more complete data set. The TCB data for water and SPM are summarized in Tables 6 and 7. Plots of the average concentrations at each station versus time are shown in Figures 8 and 9. In general the TCB concentrations in the SPM correspond well with the trends in whole water.

70. Since the water column is normally stratified, at least in the surface layers within Elliott Bay, it was deemed appropriate to examine the vertical profile of PCB concentration in terms of the hydrographic characteristics of the sampling site and to determine whether reidues originating from the disposal operation were maintained and distributed primarily at specific depth layers. The data indicated that within the depth strata sampled the highest TCB levels were observed at the surface. However, depth dependence was not statistically significant and was consistent with the vertical uniformity observed in the salinity, temperature, and density profiles. Nevertheless, this gradient suggests that the low salinity water discharged by the Duwamish River is a major souce of contamination within the bay. These considerations agree with the trends observed in our earlier studies.[2, 3]

71. The data from all depths at each station were treated statistically to determine the existence of spatial and temporal treands. Although it appears that there is a general trend toward lower PCB concentrations in the water within each station, only the difference between the

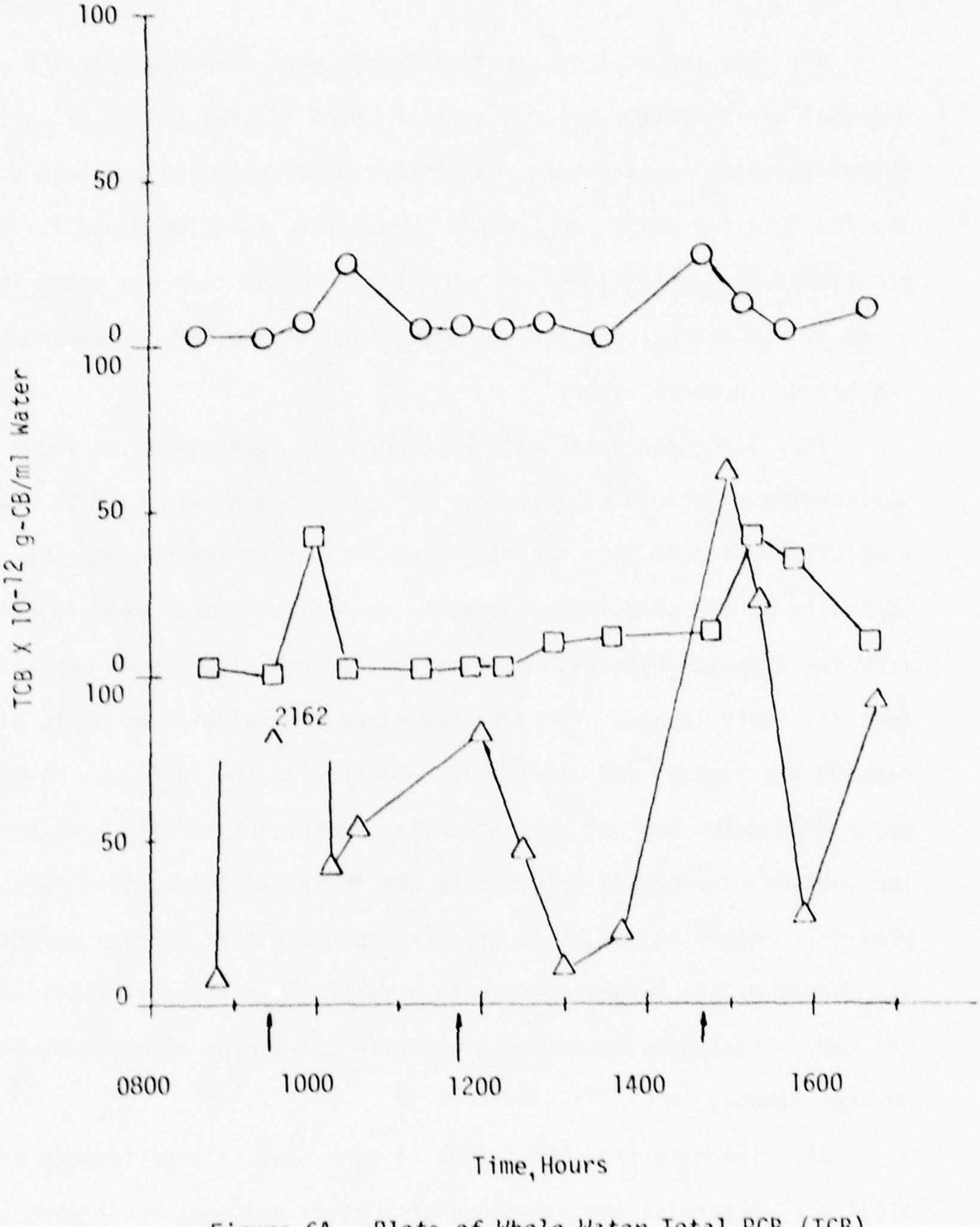


Figure 6A. Plots of Whole Water Total PCB (TCB) Concentrations at the Buoy Site (Station 6) Versus Local Time on Cruise 55; ○ - Surface, □ - Mid-Depth, △ - Bottom. Arrows indicate Approximate Times of Dump Episodes.

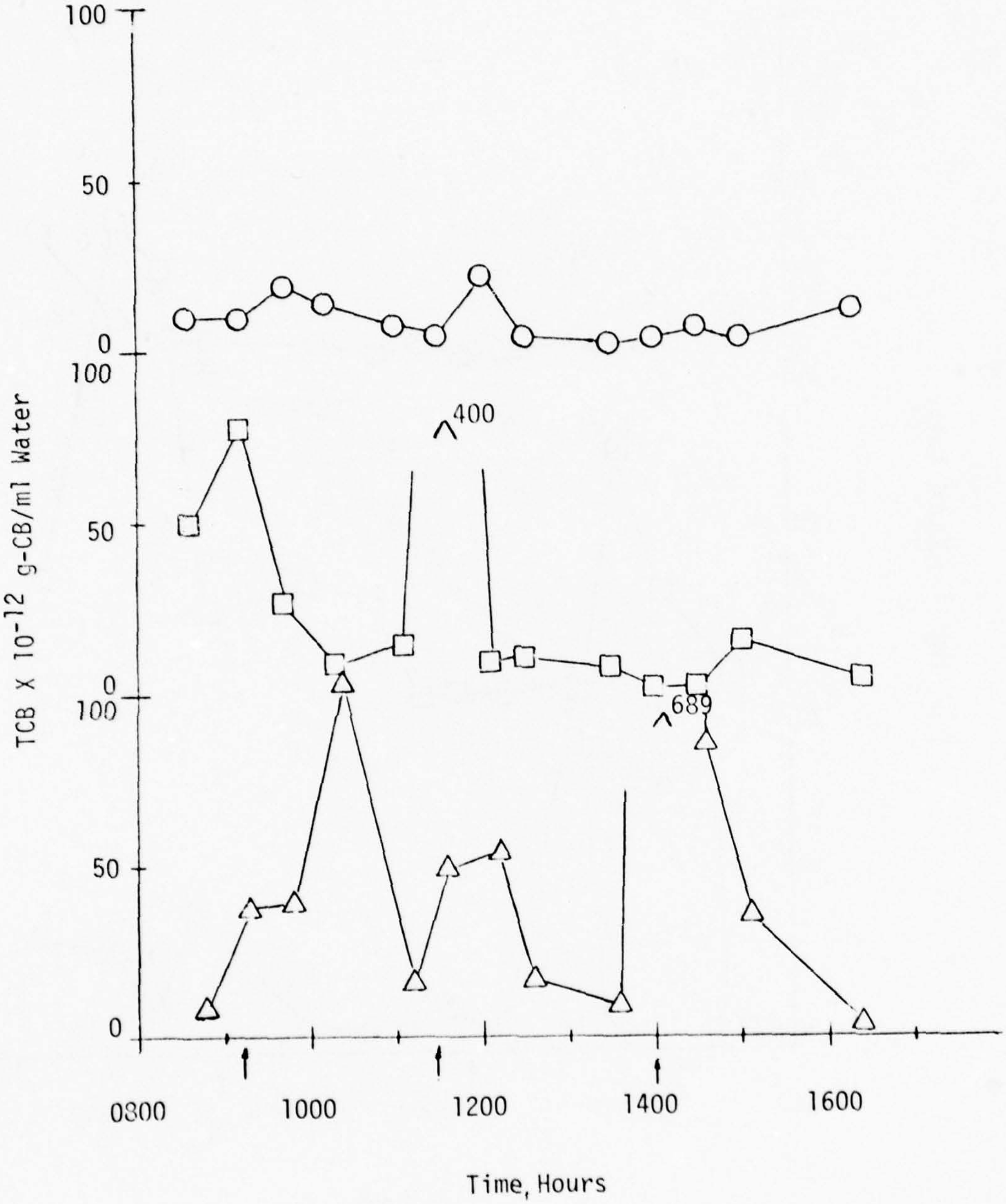


Figure 6B. Plots of the Whole Water Total PCB (TCB) Concentrations at the Buoy Site (Station 6) Versus Local Time on Cruise 57; ○ - Surface, □ - Mid-Depth, △ - Bottom. Arrows Indicate Approximate Times of Dump Episodes.

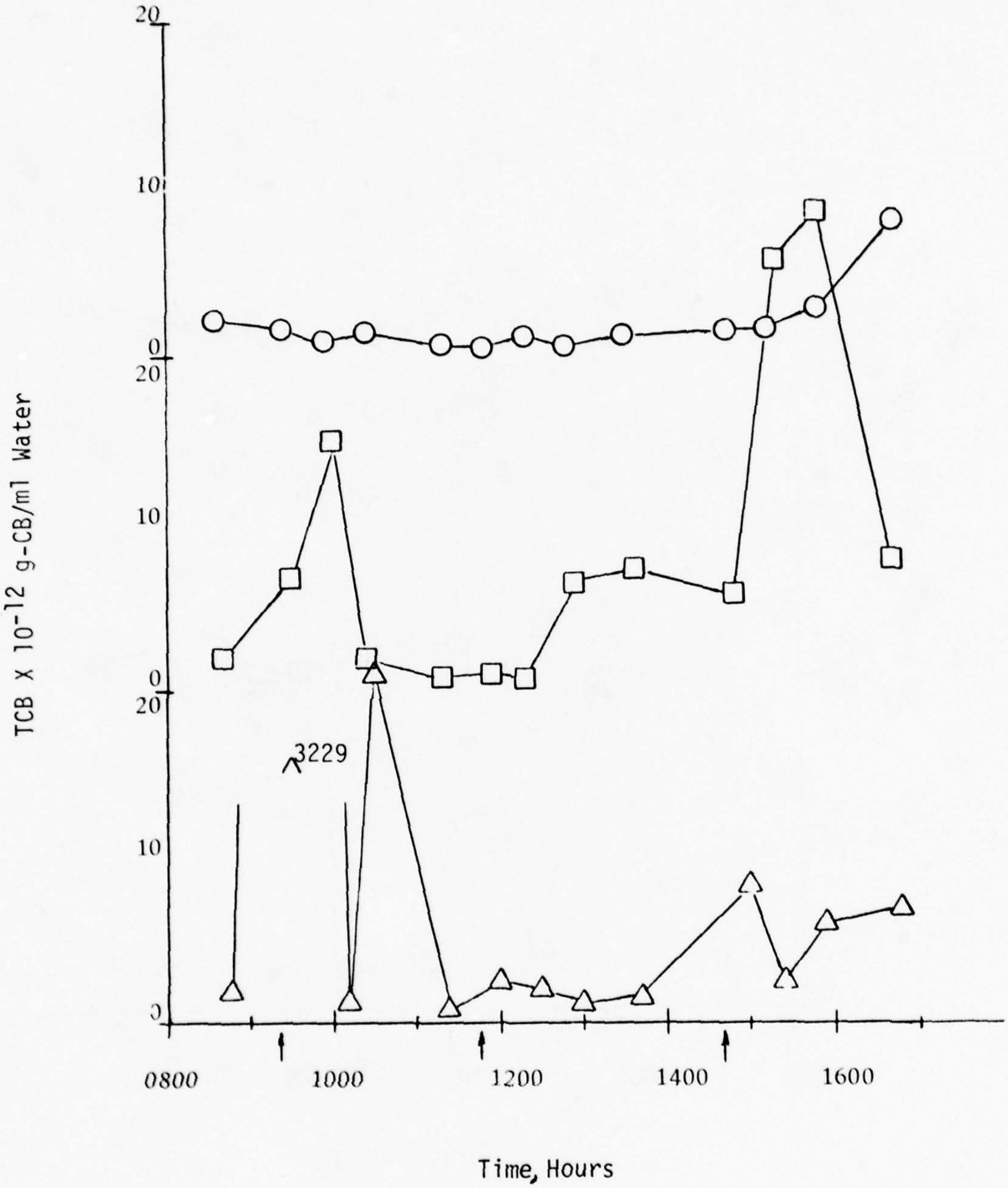


Figure 7A. Plots of the SPM Total PCB Concentrations (TCB) at the Buoy Site (Station 6) Versus Local Time on Cruise 55; ○ - Surface, □ - Mid-Depth, △ - Bottom. Arrows indicate Approximate Times of Dump Episodes.

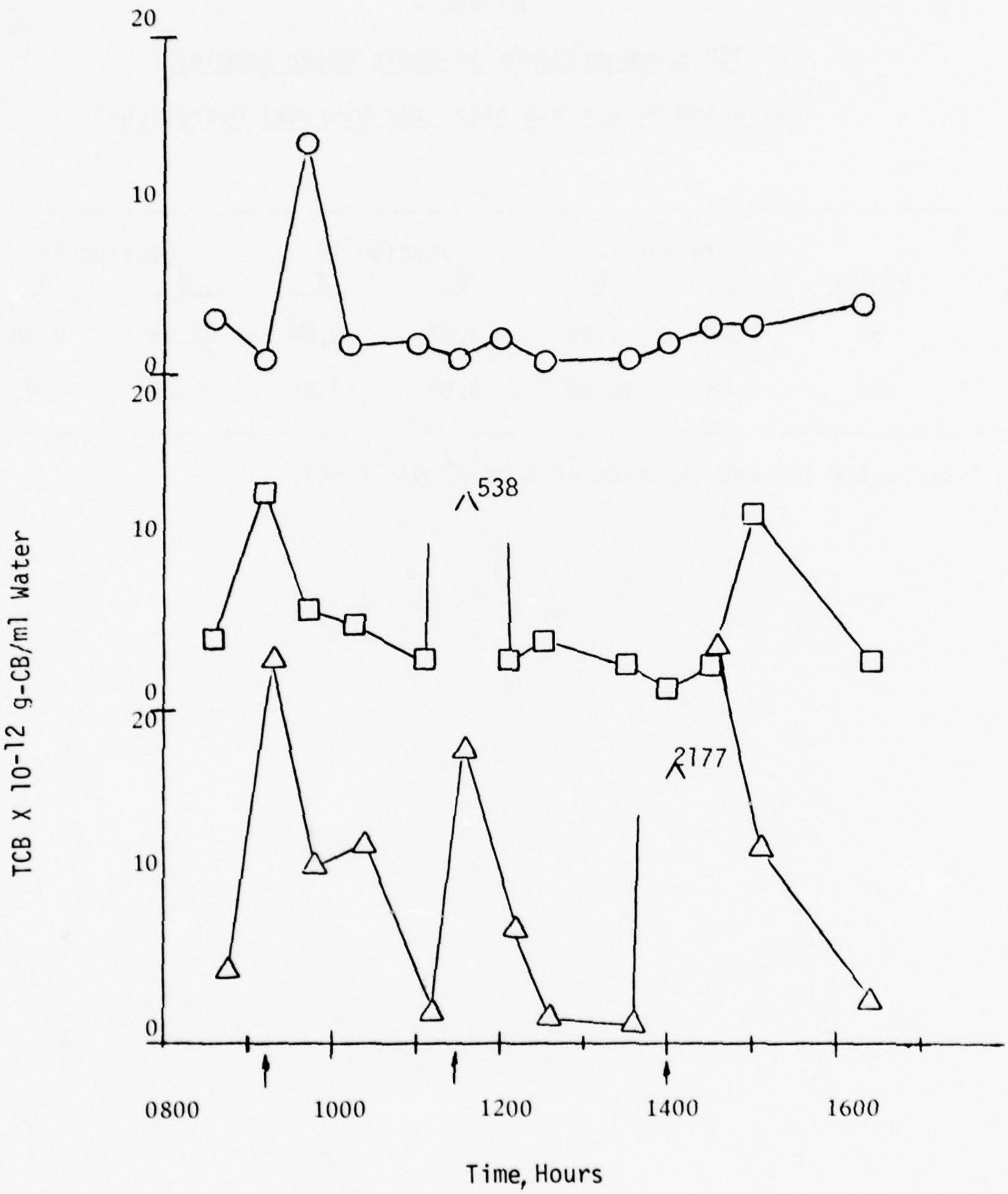


Figure 7B. Plots of the SPM Total PCB Concentrations (TCB) at the Buoy Site (Station 6) Versus Local Time on Cruise 57; ○ - Surface, □ - Mid-Depth, △ - Bottom. Arrows indicate Approximate Times of Dump Episodes.

TABLE 5

TCB Concentrations in Whole Water Samples

Collected Before and After the Disposal Operations*

Cruise	Station 17		Station 19		Station 44	
	B	A	B	A	B	A
55	2.28	7.45	3.23	10.69	3.98	9.30
57	3.46	10.96	6.52	13.35	6.09	14.03

*Values for TCB are in units of x 10^{-12} g/ml(ppt).

TABLE 6

Mean Total Chlorobiphenyl Concentrations in Whole Water Samples at each station for the Post Disposal Cruises

HAB-STA NO. / CRU	1	10	17	19	44
67	5.30*	4.06	4.44	12.25	6.05
76	1.62	3.31	2.11	3.31	4.86
99	3.43	3.13	2.19	3.21	7.75
170	2.93	7.93	1.95	1.41	1.65
266	2.32	2.29	1.47	2.25	1.40
343	.99	1.04	1.06	1.49	6.68

*TCB concentrations are in units of x 10^{-12} g TCB/ml water.

TABLE 7

Mean Total Chlorobiphenyl Concentrations in SPM

Samples at each station for the Post Disposal Cruises

HAB-STA NO. / CRUISE	6	10	17	19	44
67	4.20*	2.58	-1.00	-1.00	-1.00
76	2.37	2.34	-1.00	-1.00	-1.00
99	1.86	1.64	1.62	1.75	3.75
170	1.45	1.14	1.00	1.49	1.35
266	.68	.49	.58	1.74	1.04
343	.98	1.12	1.06	3.11	3.06

*TCB concentrations are in units of x 10^{-12}g TCB/ml water.

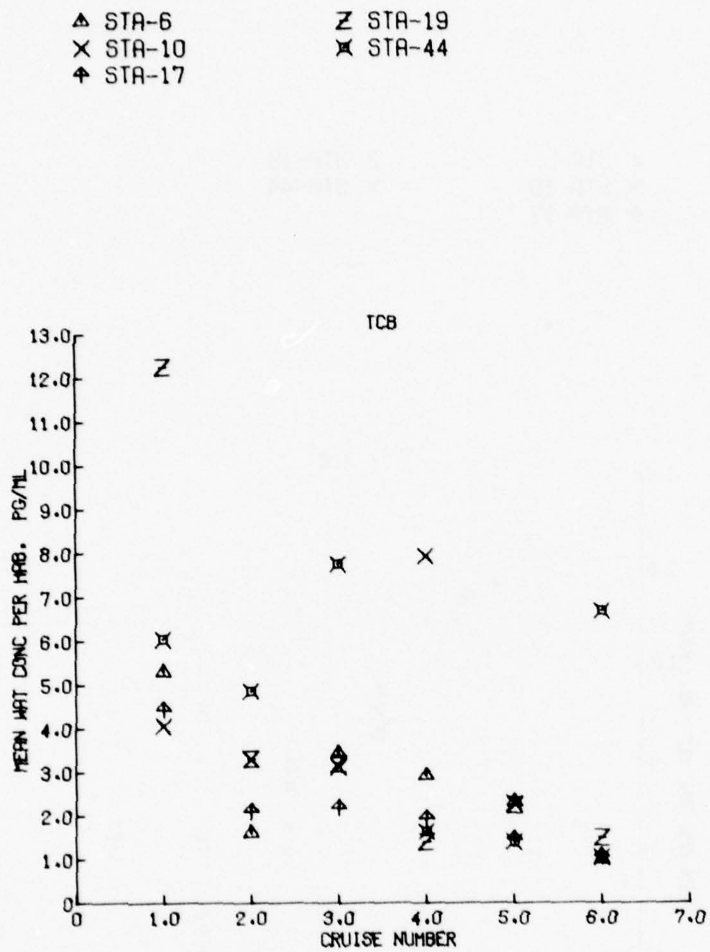


Figure 8. Plots of the Mean Habitat TCB Concentrations Versus Time for Whole Water (Post-Disposal Cruise Series).

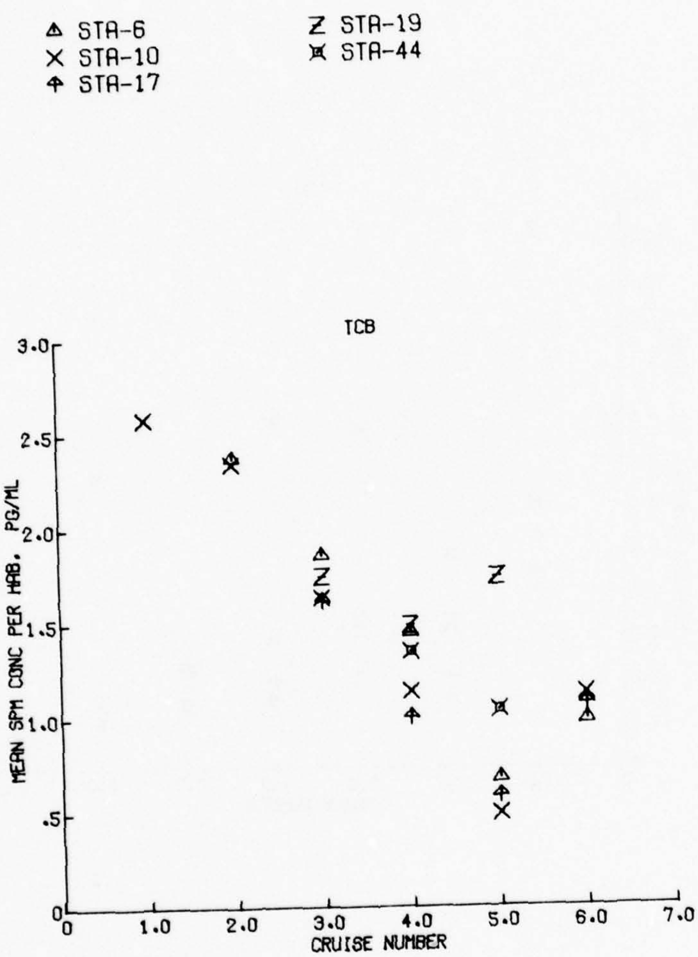


Figure 9. Plots of the Mean Habitat TCB Concentrations Versus Time for SPM (Post-Disposal Cruise Series).

first post-disposal cruise (67, two days after cessation of dumping) and all subsequent cruises was significant. The mean PCB value for all stations within the bay for cruise 67 was approximately 7 ppt and was higher than what has been observed in the past.

72. Comparisons between stations within each cruise did not yield any significant differences, although the levels at stations 19 and 44 were generally higher than the other three stations. This again probably reflects the input from the industrialized river and Seattle waterfront.

Sediment Parameters

PCB characteristics

73. River sediments. The concentrations of TCB observed in the river sediments (stations 21-39) which provided the source of material for the disposal project ranged between 0.01 and 6.98 ppm. A profile of these values over the stations sampled is presented in Figure 10. Considerable spatial variability was observed with high levels occurring in the northern section of the river. These high levels were associated with what appeard to be a rather narrow band of highly contaminated sediments centered around station 25. Both up and downstream the levels decrease fairly regularly. Upstream of station 13 there was a marked decrease in TCB concentrations to a constant level of about 0.2 ppm. The abnormally low values observed in stations 30 and 38 are due predominantly to the coarse grain of these sediments (sand) as compared to the other samples collected. The mean TCB concentration throughout the section of the river sampled was 2.05

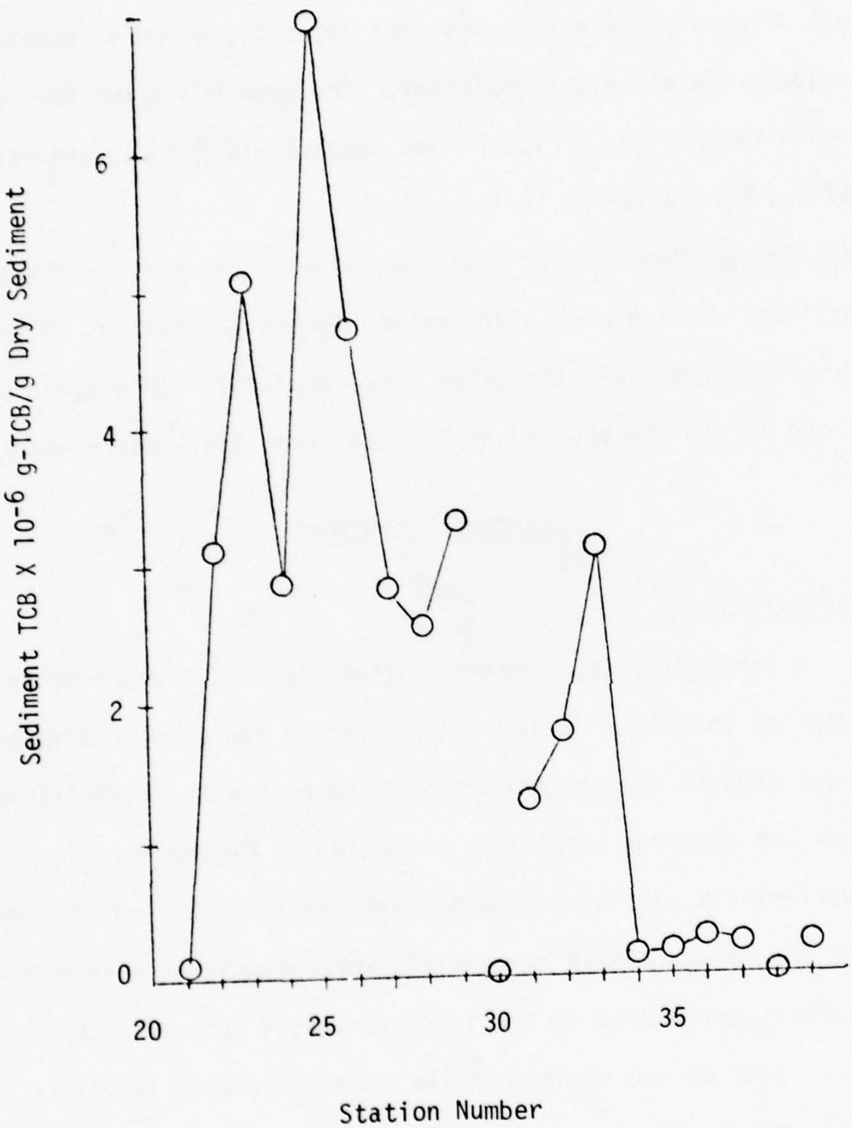


Figure 10. Plots of the Total PCB (TCB) Concentration in Sediments Versus Relative Distance (Station Number) Within the Duwamish River Site.

ppm. It should be noted that this value does not correspond to the mean value determined in the sediments at the disposal site because the spatial variability of PCB concentrations within the river sediments and the quantities of material dredged that contained a given concentration of PCB were not accounted for in the averaging process.

74. As has been discussed previously,[4] characterizing environmental CB through measurements of the relative mass fractions, Fn, of the N-CB components constituting the PCB mixture provides useful data for assessing the dispersal of these chemicals and tracing their source. The characteristic Fn distribution, or "fingerprint", of the river sediments is shown in Figure 11 as a plot of Fn versus the chlorine number, N. The values were generated by determining the relative concentrations of corresponding N-CB, averaged over all the river stations. While the pentachlorobiphenyl (5-CB) residues predominated, significant quantities of lower chlorinated biphenyls were observed. In particular, the trichlorobiphenyls (3-CB) averaged about 20% of total. There was relatively little spatial variability in the Fn distributions of the river samples compared to the large fluctuations in the corresponding TCB concentrations. It is also worth noting that many of the CB values observed in the river were considerably higher than what had been anticipated. Previous studies have relied on relatively low intensity, synoptic samplings under the assumption that CB levels were reasonably continuous between sampling points. The CB concentrations in the upper reach of the dredged river site were comparable to these previous studies.[2, 20] Unfortunately, the lower reach,

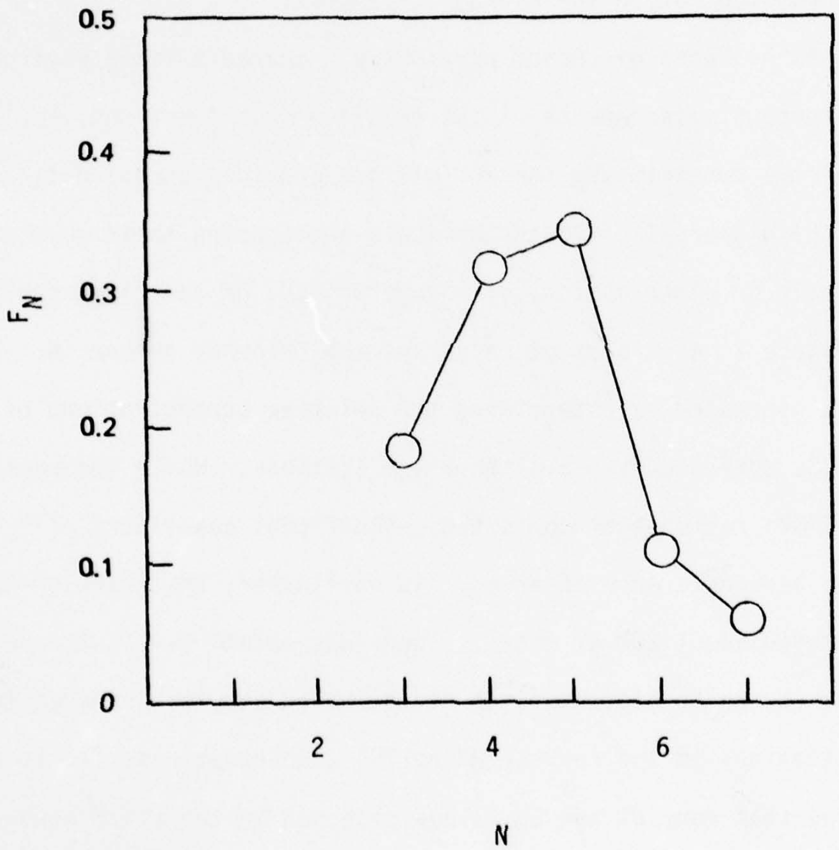


Figure 11. Plots of Averaged Relative Mass Fraction, F_N, Versus Chlorine Number, N, for the Sediments at the *Duwamish River* Dredged Site.

between stations 21 and 30, had not previously been sampled. As a result, it is not possible to determine the historical sequence of inputs leading to the elevated CB levels. These CB are most likely not related to the transformer spill in the lower Duwamish in September 1975. Although some upstream movement of the latter material was observed, the translocation was limited within a few hundred meters from the Slip 1 spill site.[21]

75. Background conditi៴n at the disposal site. TCB concentrations within the sediments of the disposal zone and reference areas prior to dumping (background conditions, cruise 37) are included for the upper horizon in Table 8 as mean values for each habitat. (The groups of stations constituting the habitats and the rationale for this breakdown are discussed in the next section.) A pronounced PCB gradient is shown which consists of significantly higher levels in the east (along the Seattle waterfront) and central portions of the bay, decreasing to the west. Although in general this is consistent with the deposition pattern of contaminated sediments discharged from the Duwamish River as observed in previous studies (see discussion in Part I), it should be pointed out here that the spatial nonhomogeneity within the grid is very pronounced. Even within as small an area as that defined by one station, PCB levels varied as much as eightfold. For example, although the average TCB concentration at the disposal site was 0.2 ppm, a single sample (station 13) had a measured value of 1.7 ppm. The field replicate of this sample was 0.15 ppm.

76. Spatial variability in the PCB type was also noted when the relative mass fractions were compared. For example, Figure 12 compares a plot of the Fn values averaged over all cruise 37 samples versus N with a similar plot for the high concentration sample from station 13 referred to above. While the 5-CB residues predominate in both, the station 13 sample was enriched in 6- and 7-CB and in fact had a component distribution nearly identical with that of Aroclor 1260 type PCB. Similar differences were noted in the relative N-CB concentrations at other stations. It seems improbable that such high variability in concentrations and PCB type could be generated by normal estuarine deposition. Rather the data indicate that the least part of the background CB levels resulted from direct inputs of CB containing materials, e.g., ship discharges, waste dumping, or spills. It is also important to compare the Fn relationships of river and disposal zone sediments. Even though there is some overlap in the concentration ranges observed in the two areas, all river samples were comparatively enriched in lower chlorinated biphenyls. This difference provides an effective means of accurately discriminating between the two sediments.

77. Post-disposal characteristics. To facilitate visualization of the general spatial and temporal trends of CB residues in the disposal and reference zones during the pre- and post-disposal cruises, three-dimensional histograms of TCB concentrations were constructed as shown for the upper horizon in Figures 13 and 14. Inspection of these histograms indicates that after disposal the highest concentrations were encountered

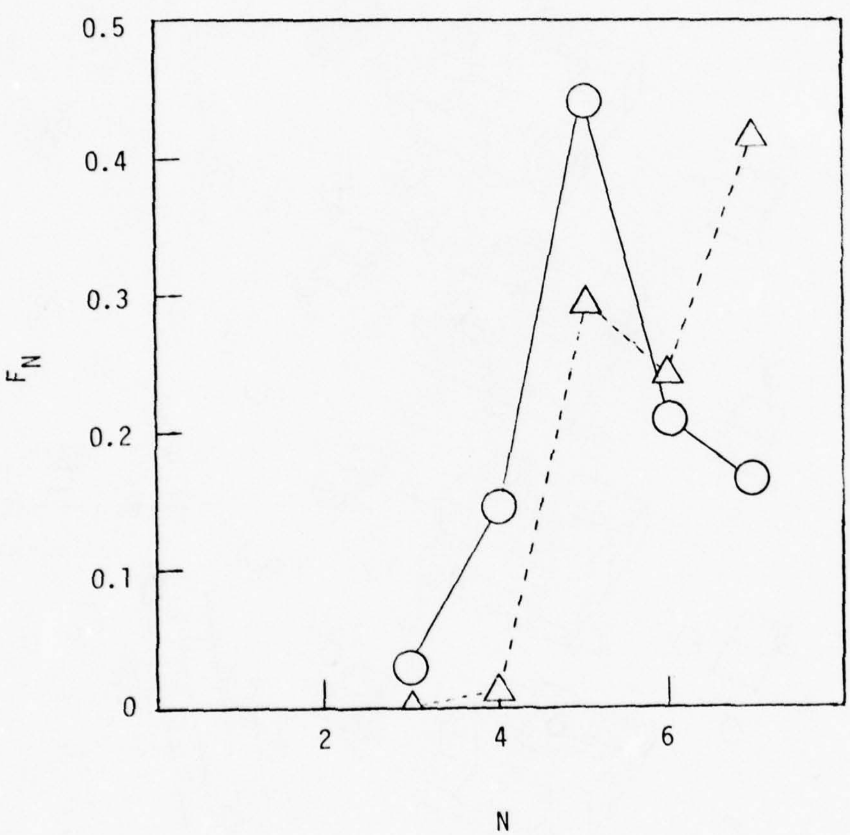


Figure 12. Plots of Relative Mass Fraction, F_N, Versus Chlorine Number, N, for Background Sediments at the Disposal Site: O, Averaged Values for All Stations; Δ, Values for Station 13.

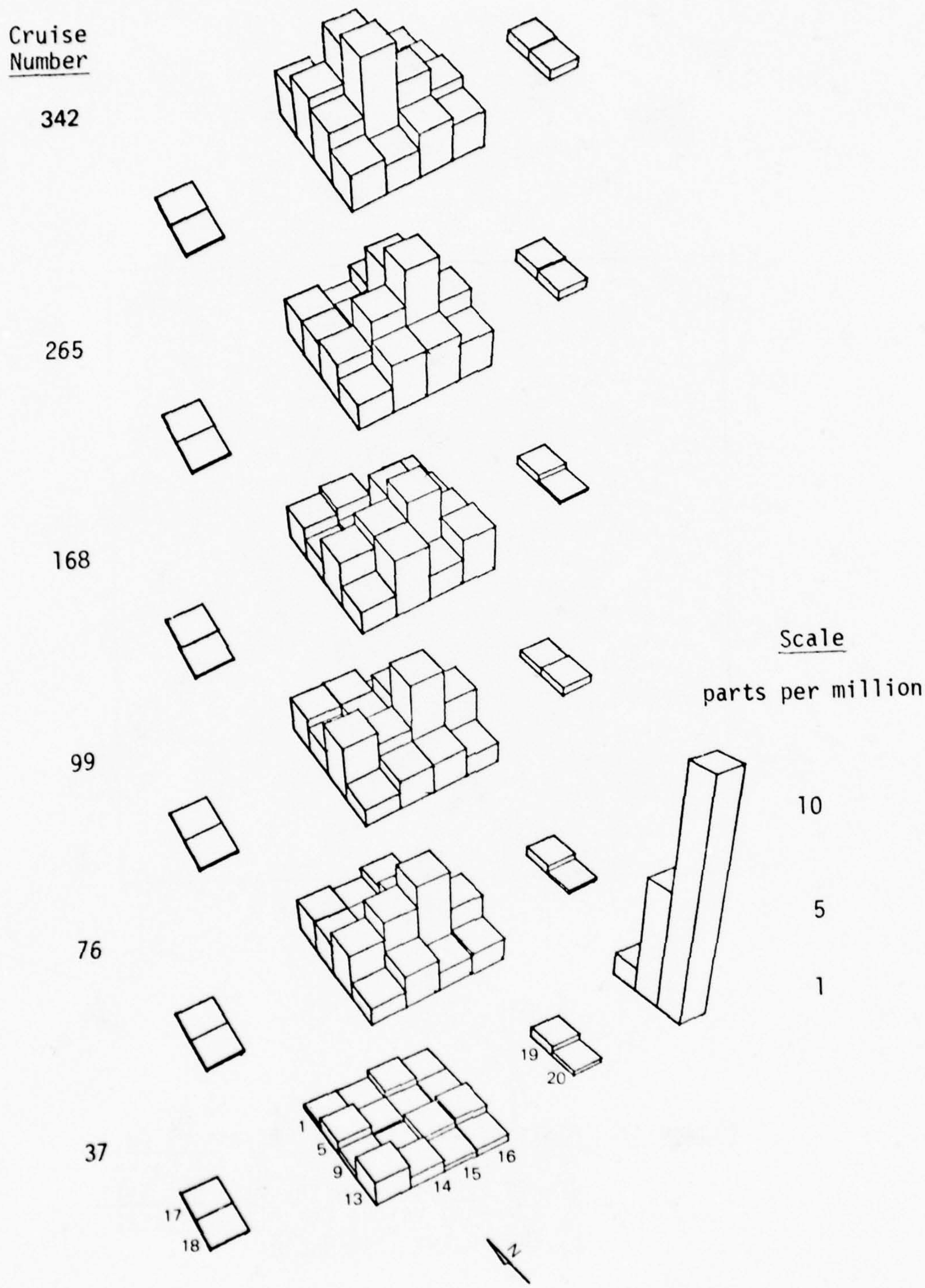


Figure 13. Three Dimensional Histogram of the Total PCB Concentrations in Sediments for the Upper Horizon (Northward Direction).

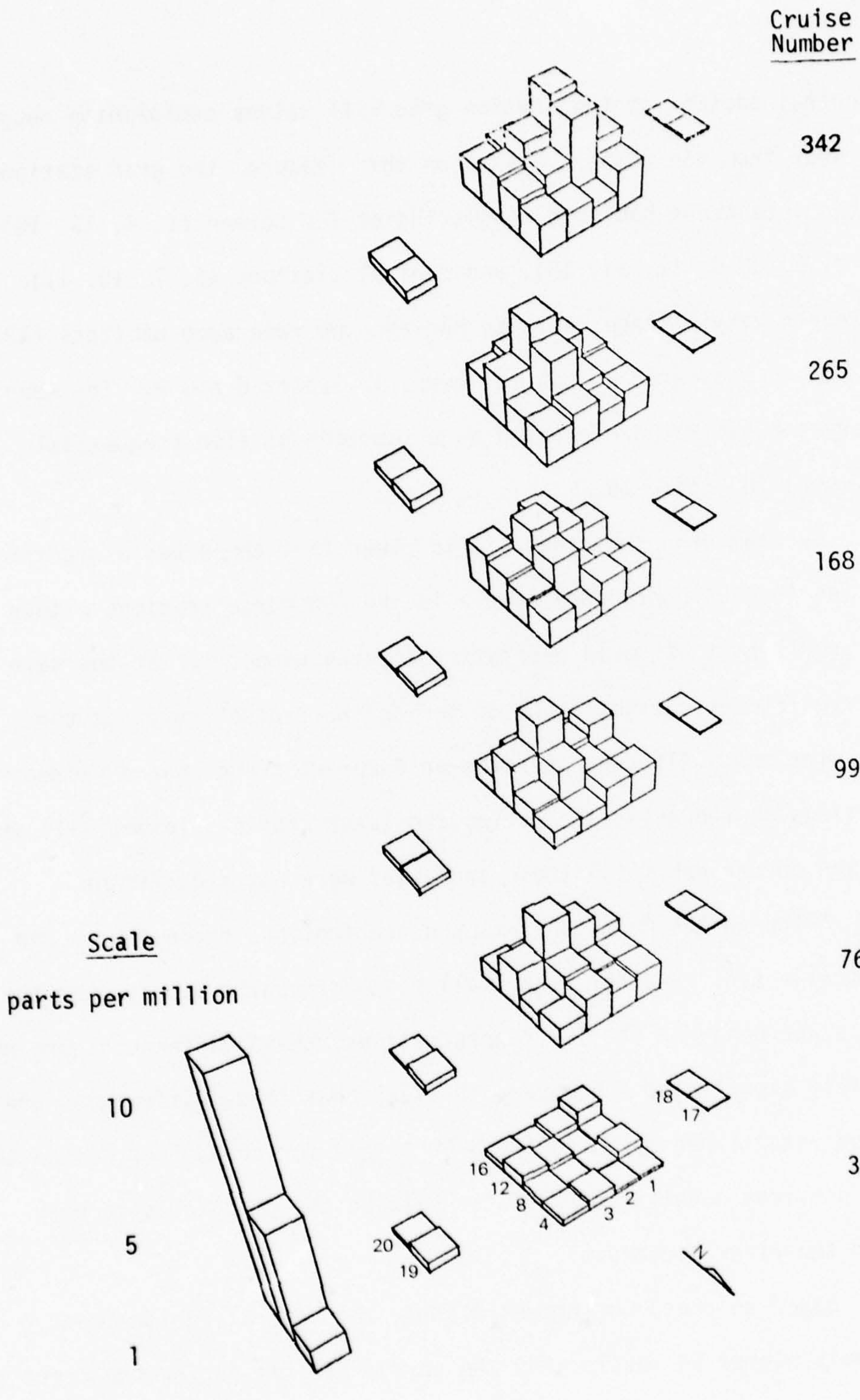


Figure 14. Three Dimensional Histograms of the Total PCB Concentrations in Sediments for the Upper Horizon (Southward Direction).

at the central section of the station grid with values diminishing roughly radially away from the center. Based on this feature, the grid stations were sorted into three habitats consisting of the corner (1, 4, 13, 16), side (2, 3, 5, 8, 9, 12, 14, 15), and central stations (6, 7, 10, 11). The residue levels within these habitats and the two reference habitats (17, 18 and 19, 20) are presented as habitat means in Tables 8 and 9. The mean values for each habitat are plotted as a function of time (sequential cruise number) in Figure 15.

78. By examining these data it is clear that there was a significant increase (at the 95% confidence level) in the PCB concentrations within the upper horizon at all grid habitats following disposal. At the same time, no significant change was noted during the cruise series at the reference stations. Although there is an apparent trend toward increasing concentrations at the grid site during the later cruises, (especially at the side and corner habitats) these increases were not significant.

79. Although the mean habitat CB concentrations decreased in the order central > side > corner during all post-disposal cruises, when the comparisons are based on the TCB concentrations, these differences are not statistically significant. However, the fact that these differences are real can be established by using the 3-CB levels for comparison, since this component provides a better discrimator between the disposal site background and the river sediments.

80. Based on the 3-CB concentrations, the central habitat had significantly higher CB levels than the corner habitat during the first two

TABLE 8

Mean Habitat TCB Concentrations in

the Upper Horizon Sediments for Each Cruise

HABITAT CRUISE	Corner	Central	Side	ERA	WRA
37	425.85*	246.47	369.83	310.92	59.45
76	912.38	2194.95	1256.56	243.10	86.61
99	894.78	2127.76	1320.05	309.59	85.94
168	1331.69	2187.23	1355.57	233.75	81.96
265	1339.10	2938.18	2257.83	451.00	86.33
342	1575.96	3441.79	1692.97	467.11	103.94

*TCB concentrations are in units of ng TCB/g dry sediment.

TABLE 9

Mean Habitat TCB Concentrations in

the Lower Horizon Sediments for Each Cruise

HABITAT CRUISE	Corner	Central	Side	ERA	WRA
37	425.85*	246.47	369.83	310.92	59.45
76	369.23	1758.32	366.51	26.59	14.81
99	185.11	1252.83	321.72	816.10	14.05
168	248.05	1259.05	631.39	78.70	17.24
265	439.37	1986.98	637.60	374.79	50.66
342	685.88	1635.24	980.38	251.16	17.17

*TCB concentrations are in units of ng TCB/g dry sediment.

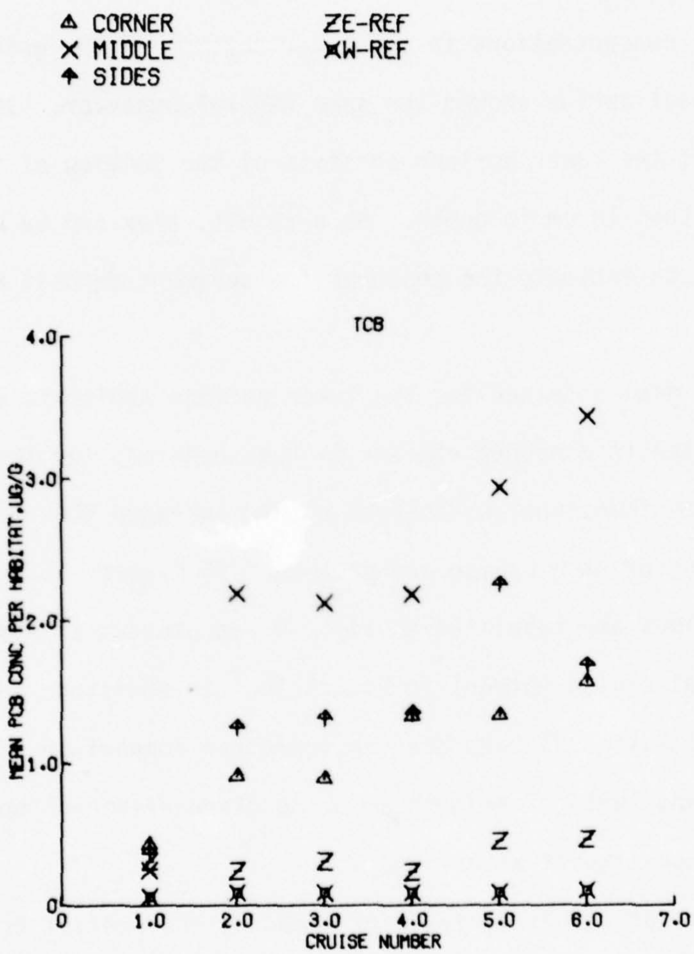


Figure 15. Plots of Mean Habitat TCB Concentrations Versus Time for Sediment in the Upper Horizon.

post-disposal cruises. Subsequently, as a result of the small increases in CB concentrations at the corner and side stations, these differences could no longer be distinguished.

81. PCB concentrations in the lower horizon of the grid during the post-disposal period showed the same general behavior. It must be remembered that the lower horizon consists of the section of the sediment corer greater than 10 cm in depth. As a result, they can be used to a certain extent to estimate the depth of the sediment deposit within that core.

82. The data obtained for the lower horizon sediments were organized and are presented in a manner similar to that provided for the upper horizon. Three-dimensional histograms of the averaged TCB concentrations at each station for each cruise are presented in Figures 16 and 17. Mean habitat TCB values are tabulated in Table 9 and plotted as a function of time (sequential cruise number) in Figure 18. In addition, the background sediment data (cruise 37) have been included for comparison since at many stations what was surface sediment prior to disposal became buried and a lower horizon constituent afterwards.

83. The statistical analyses of temporal and spatial trends was based on the trichlorobiphenyl (3-CB) concentrations to provide the most sensitive discrimination between the background sediments and those deposited during the disposal operation. The mean habitat concentration of 3-CB in the lower horizon are tabulated for each cruise in Table 10.

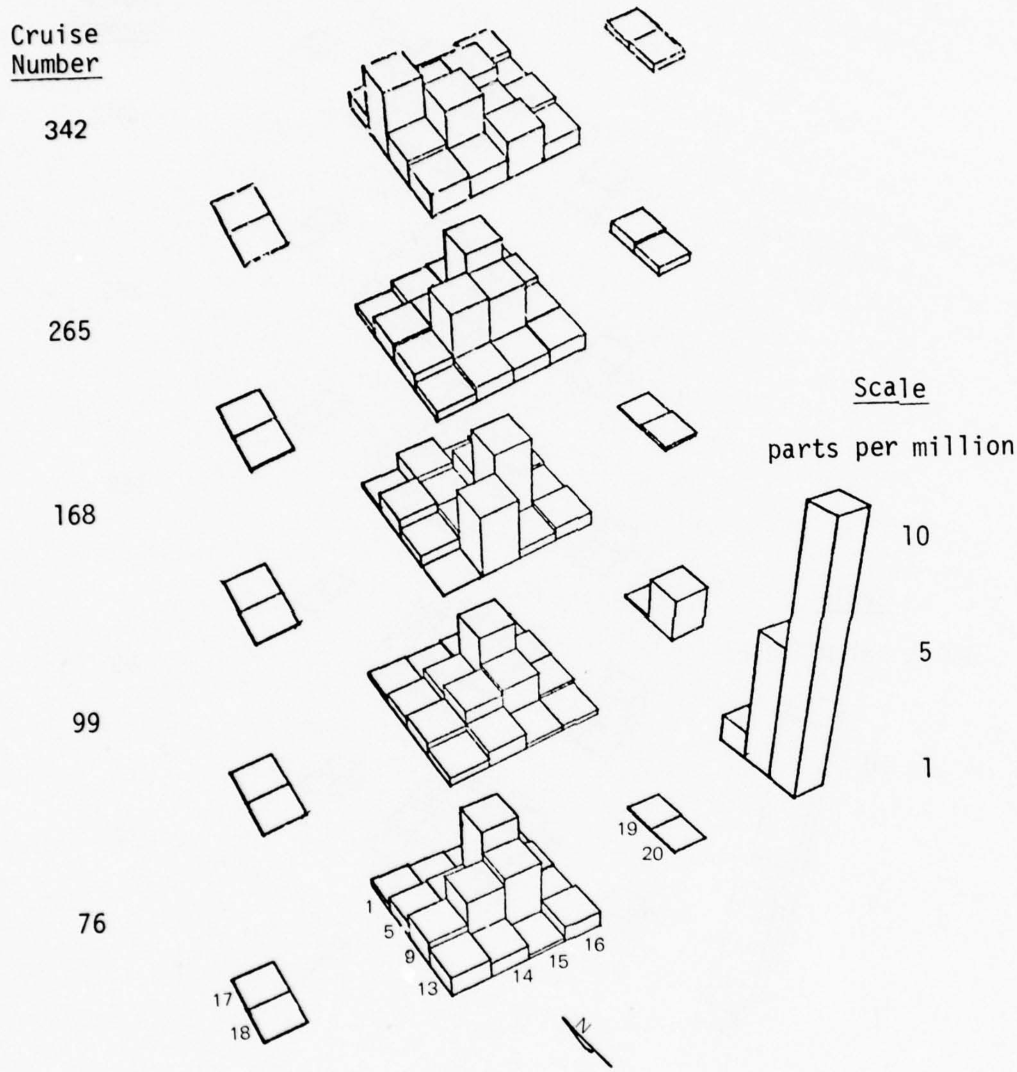


Figure 16. Three Dimensional Histograms of the Total PCB Concentrations for the Lower Horizon (Northward Direction).

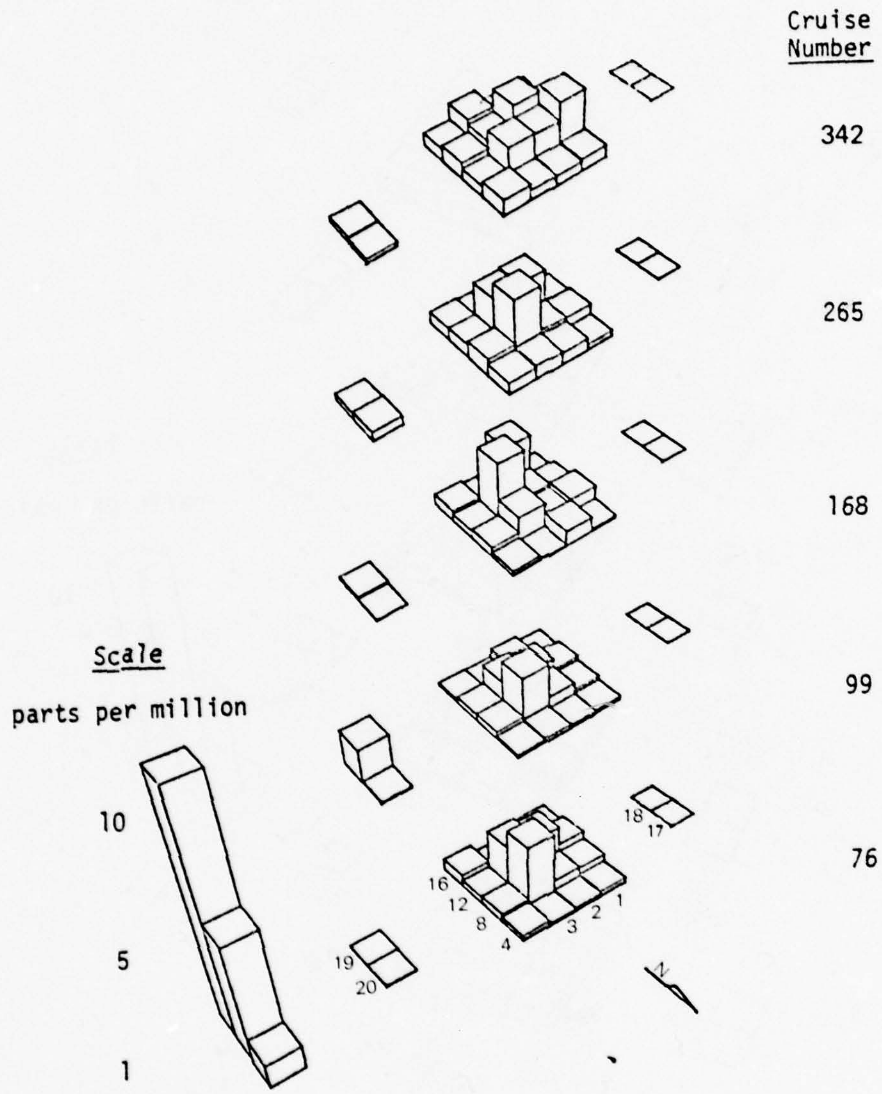


Figure 17. Three Dimensional Histograms of the Total PCB Concentrations for the Lower Horizon (Southward Direction).

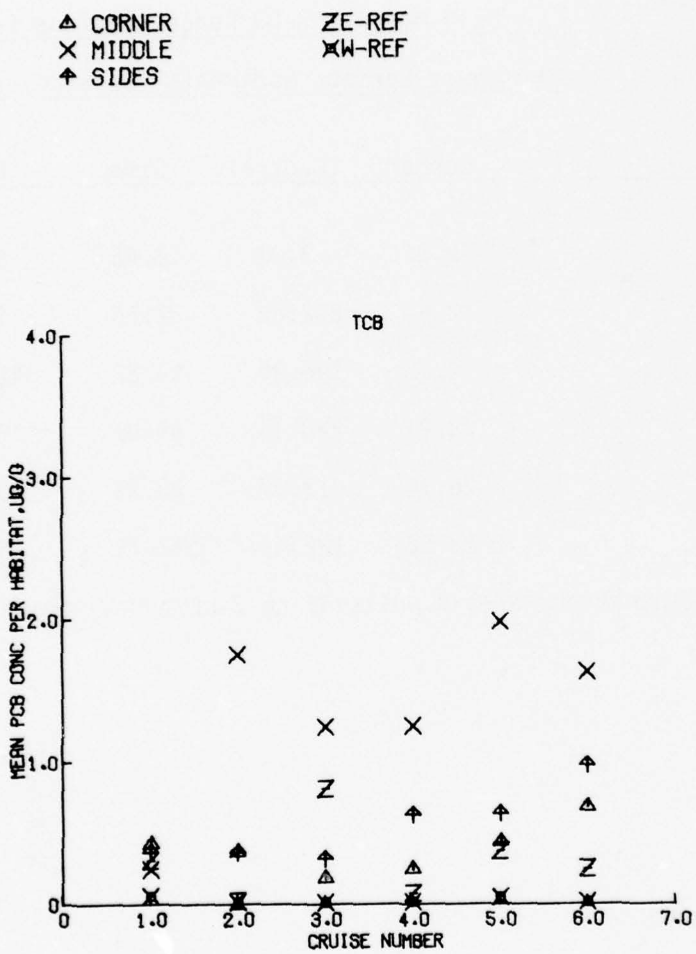


Figure 18. Plots of the Mean Habitat PCB Concentrations Versus Time for Sediments (Lower Horizon).

TABLE 10

Mean Habitat 3-CB Concentrations in

the Lower Horizon Sediments for Each Cruise

HABITAT CRUISE	Corner	Central	Side	ERA	WRA
37	5.12*	3.02	13.45	9.98	1.39
76	12.64	292.82	32.55	1.22	.55
99	4.30	196.30	22.22	341.00	.80
168	9.91	220.34	45.91	2.31	.41
265	26.70	413.37	98.77	10.04	1.35
342	83.56	322.46	187.71	6.01	.07

*3-CB concentrations are in units of ng 3-CB/g dry sediment.

84. Comparions of the 3-CB concentrations between the upper and lower horizons showed no significant differences within the central habitat during any post-disposal cruise, indicating that the depth of the deposited sediments was greater than the core tube penetration (as great as 30 cm). In contrast, both the side and corner habitats always showed significantly lower 3-CB concentrations in the lower horizon than was observed in the overlying sediment.

85. Similar to the residue levels in the upper horizon, the lower horizon of the central habitat showed a significant increase in CB concentrations immediately after disposal, with no changes noted in later cruises. On the other hand, neither the side nor corner habitats increased significantly immediately following disposal, indicating that the depth of the original dredged materials deposit was less than 10 centimeters thick around the periphery of the disposal zone. The data from later cruises, however, showed a trend toward increasing CB concentrations within the lower horizon sediments at the side and corner habitats. After six months (cruise 265), the lower horizon at the side habitat had reached CB concentrations significantly higher than those observed in the background surface sediments (cruise 37). Similar trends were seen at the corner habitat, but a significant increase in lower horizon CB concentrations did not occur until the ninth month (cruise 342).

86. Comparisons of the mean 3-CB concentrations for each habitat within cruises correlate with these temporal trends. For the first month after disposal (cruises 76 and 99), the lower horizon of the central

habitat had significantly higher residue levels than the corresponding horizon at either the side or corner habitats. By three months (cruise 168), however, the side and central habitats were no longer significantly different. At none months, nine of the three habitats were significantly different from each other. These trends are apparent in the "leveling" of the histograms with succeeding cruises shown in Figures 16 and 17.

87. In view of the above considerations a number of factors should be emphasized:

a. The overall spatial and temporal features of the CB concentrations suggest that the sediments deposited at the disposal site were not stabilized during the monitoring period; they were slumping from the center of the grid to the periphery. This phenomenon might have some important connotations to the impact on the benthic biota, specifically the process of recolonization of the disposal area. An unstable environment characterized by shifting, unconsolidated bottom material should provide a poor substrate in which benthic organisms can be established.

b. The absence of significant reduction in CB levels in the grid site indicates that no major resuspension or bed-load transport of bottom material has occurred throughout the monitoring period. This is not unreasonable if one considers the rather weak and variable velocity field along the bottom of Elliott Bay, and the internal consistency of the PCB data with the other physical and chemical measurements conducted in the water column.

c. Even though both the interstitial water measurements and modified elutriate test (described in the following sections) indicate that CB concentrations in water in equilibrium with these high CB concentrations in the sediments are greater than what were observed in the water column by an order of magnitude or more, there was no evidence of rapid desorption and mobilization of CB.

88. The total amount of PCB deposited in Elliott Bay as a result of the disposal operation was estimated as follows. An average value of 2.0×10^{-6} g TCB/g dry sediment was determined from the PCB data obtained in the river sediments prior to dredging. The total volume of the sediments dredged was about $1.1 \times 10^{5} m^{3}$. Assuming a wet density of $1.3 g/cm^{3}$ and 50% water content by weight, a value of 1.4×10^{5} g TCB was calculated to have been deposited in the sediments at the disposal site in Elliott Bay.

89. Based on the PCB levels observed in previous studies,[2, 7, 20] an average background concentration of about 200×10^{-9} g TCB/g dry sediment was estimated for the entire bay. Although it must be recognized that the high spatial nonhomogeneity makes such an estimate suspect, the relatively low values ($50 - 100 \times 10^{-9}$ g TCB/g dry sediment) previously observed for most of the central, northern, and western portions of the bay,[2, 20] suggest that this value is not unreasonable.

90. Assuming this value is uniform to a depth of 10 cm in the sediments, a surface area of 14.4 km^{2} [5] and the sediments to be 50% solids, the amount of TCB contained in sediments of the bay prior to dredging was estimated to be 1.4×10^{5} g.

91. Although these estimates are undeniably crude, they still indicate that the amount of PCB transferred to the sediments of Elliott Bay was not negligible, and may have doubled the previous quantities. However, with the present limited knowledge of the sediment dynamics of PCB, the

ecosystem importance and ultimate impact of this increase cannot be predicted.

Interstitial water

92. The concentrations of TCB measured in the interstitial water of the sediment samples from cruises 37 (background) and 76 (one week after disposal) are presented in Appendix A'. Unfortunately, the small volumes of water which could be recovered from the sediments (usually 40 ml or less) introduced a large error in quantitating the CB residues in these samples. Furthermore, a number of samples showed anomalously high CB levels, probably due to contamination of the filtrate by fine sediment particles.

93. Averaged values for the disposal grid and east and west reference areas are presented in Table 11. The values averaged near 100×10^{-12} g/ml in all areas and showed no obvious dependence on the PCB levels in the corresponding sediment matrix. Any significant trends or correlations were lost in the high variability associated with these measurements.

Modified elutriate test

94. Results of the modified elutriate test performed with river sediments are presented in Appendix A' and plotted as a function of river station in Figure 19. These values correspond very well with the concentrations of CB in the source sediment matrices as can be seen by comparing Figure 19 with Figure 10. As expected, a regression analysis performed on the data (Figure 20) showed a significant linear correlation (R = 0.82). Depending on the CB concentrations in the sediments, the water concentrations ranged from a high of 439.1×10^{-12} g/ml to a low of 12.7×10^{-12} g/ml.

TABLE 11

Averaged TCB Concentrations in the Interstitial Water*

Cruise	Area		
	Disposal Grid	East Reference	West Reference
37	122.8	160.5	42.68
76	154.9**	96.7	72.40
	128.7+	--	--

* Concentrations are reported in units of 10^{-12} g CB/g H_2O (ppt).
** Upper horizon.
\+ Lower horizon.

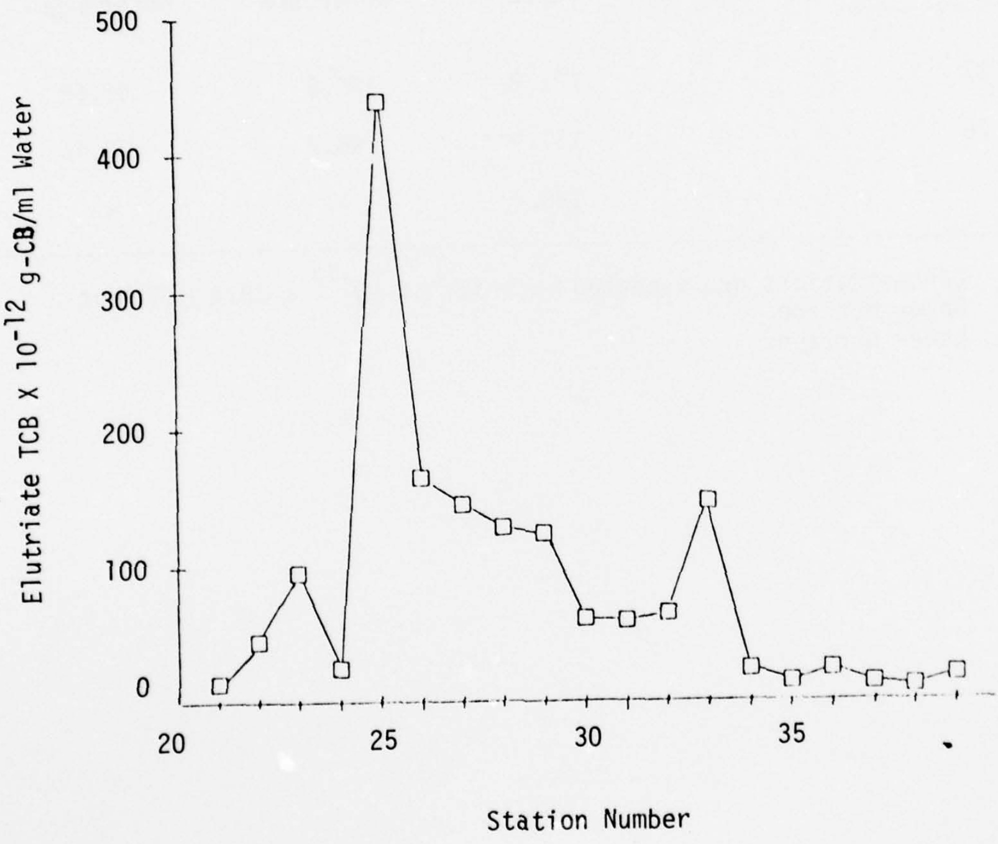


Figure 19. Plots of Modified Elutriate PCB Concentrations Versus Relative Distance (Station Number) Within the Duwamish River Site.

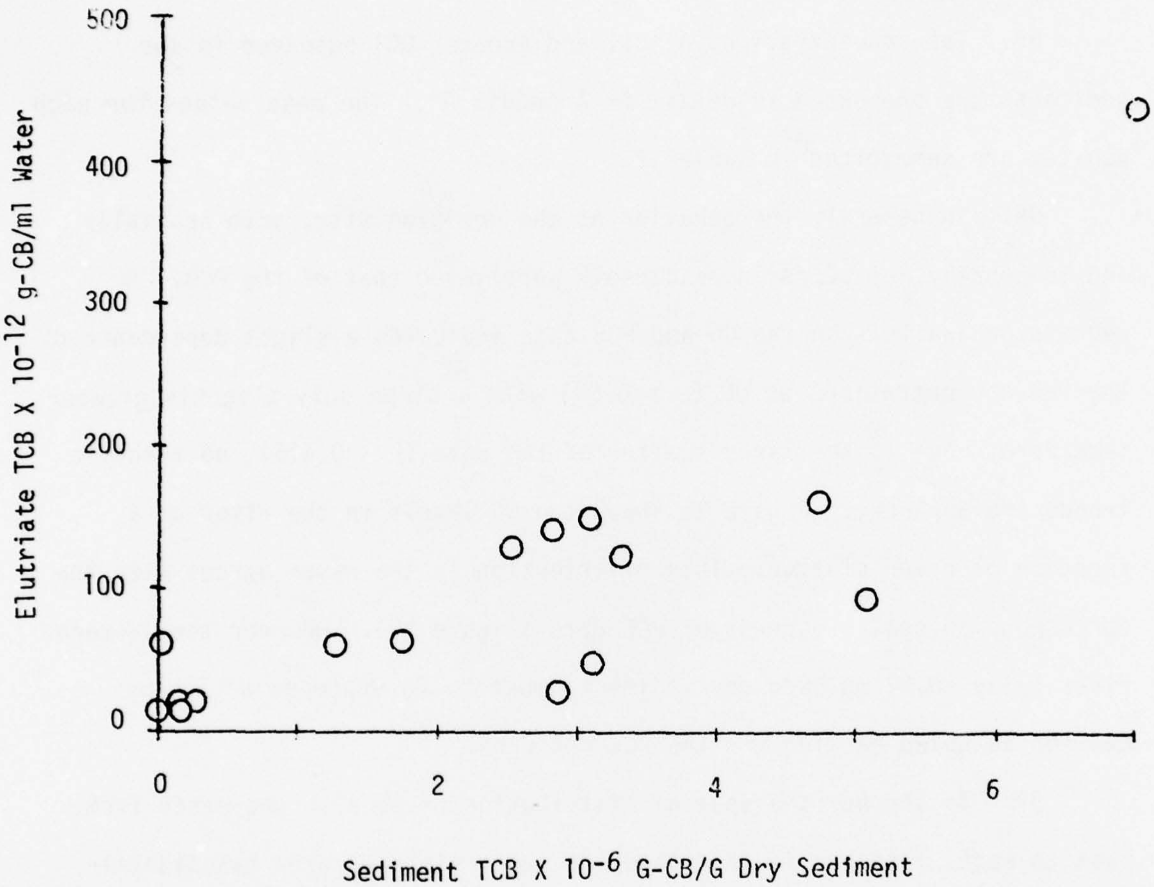


Figure 20. Plots of the TCB Concentrations in the Water From the Modified Elutriate Test Versus Their Concentration in the Corresponding Sediments for the Duwamish River Site.

Oil and grease

95. The concentrations of oil and grease (OG) observed in the sediments are presented in detail in Appendix A'. The mean values for each habitat are summarized in Table 12.

96. In general, the behavior at the dredging site, both spatially and temporally, of OG residues closely paralleled that of the PCB. A regression analysis on the OG and PCB data indicates a slight dependence of the PCB concentrations on OG (α = 0.05) with a slope only slightly greater than zero. Due to the large scatter of the data (R = 0.415), no specific trends are apparent. Figure 21 shows the OG levels in the river as a function of river station. This distribution in the river agrees with the corresponding spatial trends of PCB data (Figure 10). However the averaged river value (0.92 mg OG/g dry sediment) must be interpreted with some caution as noted earlier for the PCB residues.

97. In the bay the spatial distribution of OG also decreased from east to west, although in this case the east reference area has significantly higher OG levels than the disposal grid or west reference habitats. The levels of OG at the east reference habitat were at least as high as the averaged river value.

98. After disposal the same spatial trends were exhibited. No temporal effects were noted at either reference habitat. Within the central grid habitat, a significant increase was noted immediately after disposal, but the concentrations remained essentially constant after that. Both the corner and side stations increased slightly, but not significantly,

TABLE 12-A

Mean Habitat Oil and Grease Concentrations in

Upper Horizon Sediments for Each Cruise

HABITAT / CRUISE	Corner	Central	Side	ERA	WRA
37	.69*	.41	.66	1.07	.53
76	.75	1.26	.77	1.32	.33
99	1.00	1.48	.99	1.98	.42
168	1.42	1.54	1.09	1.54	.35
265	1.21	1.59	1.14	1.70	.37
342	1.31	1.59	1.30	1.99	.41

*Oil and grease concentrations are in units of mg OG/g dry sediments

TABLE 12-B

Mean Habitat Oil and Grease Concentrations in

Lower Horizon Sediments for Each Cruise

HABITAT CRUISE	Corner	Central	Side	ERA	WRA
37	-1.00*	-1.00	-1.00	-1.00	-1.00
76	.63**	1.15	.84	.85	.17
99	.92	1.05	.70	1.25	.31
168	.91	1.56	.95	1.07	.21
265	1.06	2.19	1.03	1.98	.42
342	1.05	1.96	1.20	2.34	.18

*-1.00 indicates that no data were collected.
**Oil and grease concentrations are in units of mg OG/g dry sediments

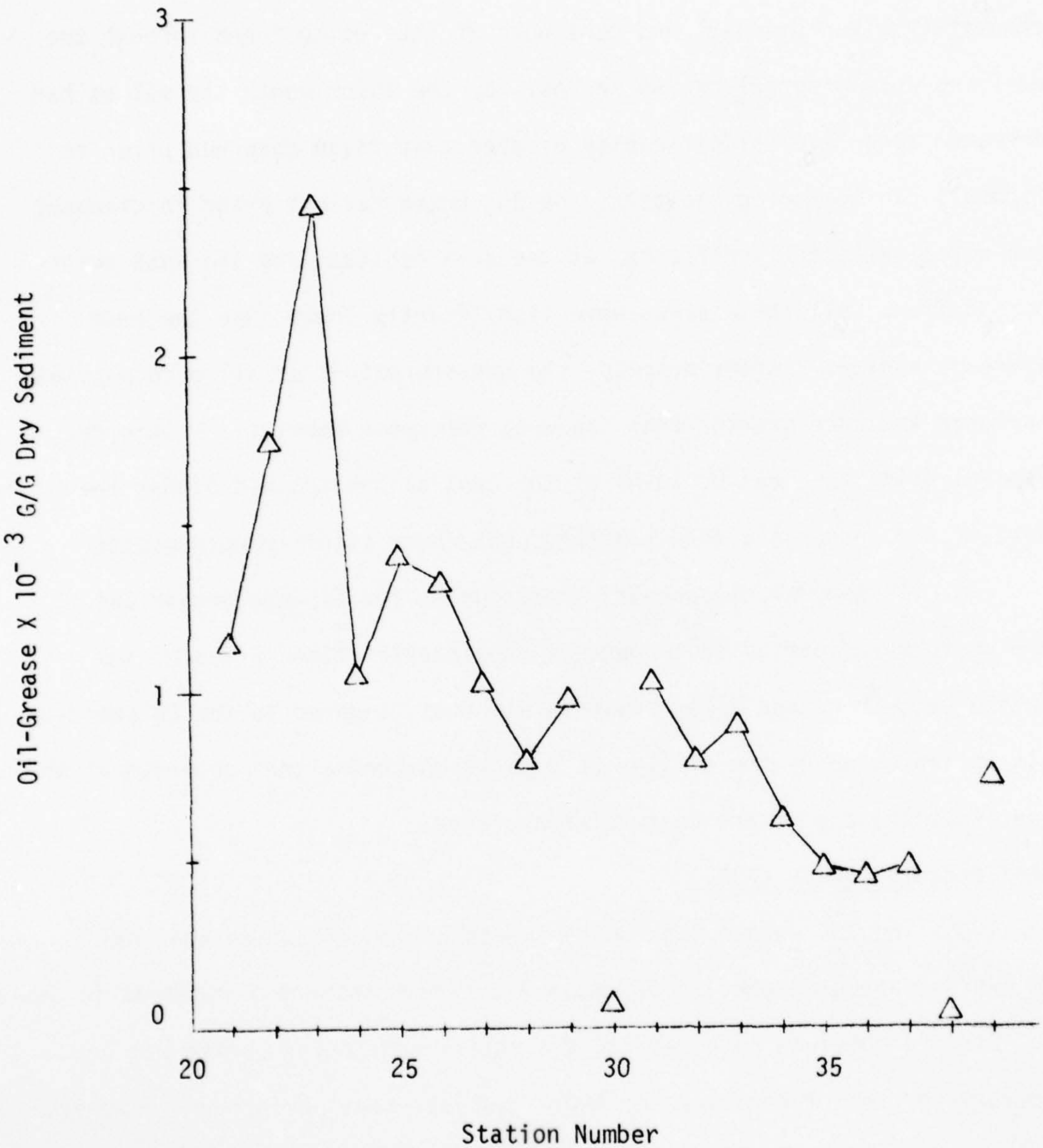


Figure 21. Plots of the OG Concentration Versus Relative Distance (Station Number) Within the Duwamish River Site.

immediately after disposal and continued an increasing trend through the remaining post-disposal cruise series. By the third month the values had increased to a level significantly greater than those observed prior to disposal. In comparing habitats, the OG concentrations prior to disposal were not significantly different at the grid habitats and the west reference station. All these areas were significantly lower than the east reference habitat. After disposal the concentrations at all grid habitats increased and were greater than the west reference habitat. Within the disposal grid, the mean OG level of the central habitat was higher than those of the corner and side habitats, but never significantly greater.

99. In general, it appears that sources for oil and grease are more uniformly distributed throughout the industrialized areas of the Seattle waterfront and lower Duwamish River as compared to the CB sources. This is indicated by the similar OG residue concentrations observed at the river stations and at the east reference area.

Total organic carbon (TOC)

100. The TOC values for the sediments collected during the last two cruises are presented in Appendix A'. The means are summarized in Table 13. Since a complete data set for the entire monitoring period was not generated by this laboratory, no ANOVA analyses were performed. However, by inspection of Table 13, the TOC/PCB and TOC/OG correspondence can be examined synoptically. TOC values are higher in the upper horizon, particularly within the central habitat. No temporal trends are apparent.

101. The relative TOC levels at the reference stations compare best with PCB residues. The per cent carbon at the east reference habitat was about the same as that at the lower horizon of the corner and side habitats, and higher than the west reference habitat. Correlations between TOC and TCB and OG were significant, although somewhat low (R = 0.53 for TOC/TCB; R = 0.55 for TOC/OG).

AD-A061 987 WASHINGTON UNIV SEATTLE DEPT OF OCEANOGRAPHY F/G 13/3
AQUATIC DISPOSAL FIELD INVESTIGATIONS DUWAMISH WATERWAY DISPOSA--ETC(U)
JAN 78 S P PAVLOU, R N DEXTER, W HOM DACW39-76-C-0167
UNCLASSIFIED WES-TR-D-77-24-APP-E NL

2 OF 6
AD
A061987

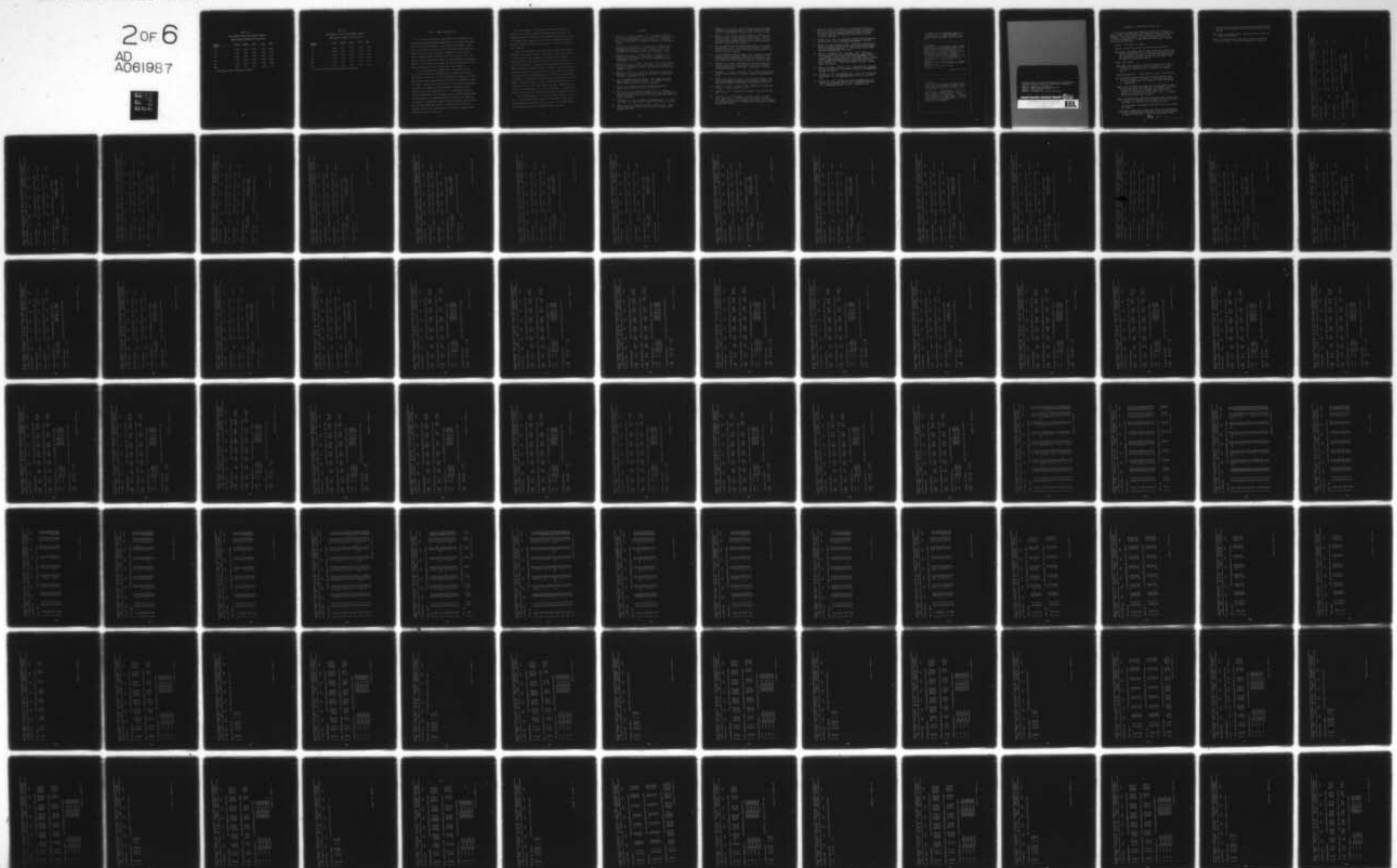


TABLE 13-A

Mean Habitat Percent Total Organic Carbon in

Upper Horizon Sediments for Each Cruise

HABITAT CRUISE	Corner	Central	Side	ERA	WRA
37	-2.00*	-2.00	-2.00	-2.00	-2.00
76	-2.00	-2.00	-2.00	-2.00	-2.00
99	-2.00	-2.00	-2.00	-2.00	-2.00
168	-2.00	-2.00	-2.00	-2.00	-2.00
265	2.93	3.45	2.82	2.06	1.39
342	3.02	3.22	2.71	2.30	1.13

*-2.00 indicates that no data were collected.

TABLE 13-B

Mean Habitat Per Cent Total Organic Carbon in

Lower Horizon Sediments for Each Cruise

HABITAT CRUISE	Corner	Central	Side	ERA	WRA
37	-1.00*	-1.00	-1.00	-1.00	-1.00
76	-2.00*	-2.00	-2.00	-2.00	-2.00
99	-2.00	-2.00	-2.00	-2.00	-2.00
168	-2.00	-2.00	-2.00	-2.00	-2.00
265	1.63	3.18	2.20	1.37	1.12
342	1.89	3.26	2.33	1.34	1.55

*-1.00 and -2.00 indicate that no data were collected.

PART V: SUMMARY AND CONCLUSIONS

102. The material dredged from the Duwamish River contained PCB at levels substantially higher than measured before in the area and enriched with lower chlorinated biphenyls. Historically, the sediments in that portion of the river were characterized predominantly by the higher chlorinated PCB (Aroclor 1254, 1260 types). Although this recent shift to lighter components might be related to the 1974 PCB spill in Slip 1, the apparent reduction of the residue levels at both the northern and southern boundaries of the dredging site suggest that the contamination was of local origin rather than a result of translocation of spill material.

103. The background PCB concentrations in the sediments of the Bay, as measured during the predisposal field sampling, are consistent with previous observations. The high sampling density within the grid area has provided a better representation of the spatial non-homogeneity of the PCB residues existing in the bay sediments. In the past we had considered deposition of suspended and bed-load sediments, originating from the Duwamish River, as the predominant source of contamination in the area. High PCB concentrations near the mouth of the East and West Waterways which decreased rapidly in a northwestward direction from the river mouth, and the higher PCB concentrations along the Seattle waterfront, were consistent with the general deposition patterns, the bulk transport of the river effluent within the bay, and the chronic PCB input from sewage overflows along the eastern side of the bay.

104. These features of circulation and sedimentation should be *reflected* by a relatively smooth PCB gradient within Elliott Bay. The anomalously high, discontinuous, and qualitatively variable nature of the PCB residues in the disposal zone do not fit this pattern and suggest an origin from direct and highly localized sources. These sources have not been identified.

105. The data obtained in this study provide indisputable evidence that there was an impact to the receiving area as shown by the increase in the PCB levels in the sediments of the disposal site. However, it should be recognized that Elliott Bay was not a pristine region prior to the disposal activities. Although most background PCB concentrations in the Bay sediments were nearly an order of magnitude lower than the values observed at the disposal site, following disposal, a number of locations, especially along the Seattle waterfront, were almost as contaminated prior to dredging. Even within the disposal site, the background levels from two samples collected during the pre-disposal monitoring exceeded 1 ppm. In terms of the effects on the water column, other than a highly transient elevation of the background PCB levels up to two orders of magnitude, the ambient conditions were not altered over the nine month monitoring period.

106. The total amount of PCB transferred to the sediments of Elliott Bay as a result of the disposal operation was estimated to have approximately doubled the quantities previously present. The ultimate impact of this increased load cannot be predicted at the present time.

REFERENCES

1. Pavlou, S. P., and R. N. Dexter. 1977. Environmental Dynamics of Polychlorinated Biphenyls (PCB) in Puget Sound: Interpretations and Criteria Recommendations, Special Report No. 75, Reference No. M 77-38, Department of Oceanography, University of Washington, Seattle.

2. Pavlou, S. P., R. N. Dexter, W. Hom, and K. A. Krogslund. 1977. Polychlorinated Biphenyls (PCB) in Puget Sound: Baseline Data and Methodology, Special Report No. 74, Reference No. M 77-36, Department of Oceanography, University of Washington, Seattle.

3. Clayton, J. R., Jr., S. P. Pavlou, and N. F. Breitner. 1977. Polychlorinated Biphenyls in Coastal Marine Zooplankton. Bioaccumulation by Equilibrium Partitioning, Environmental Science & Technology, 11:676-682.

4. Hafferty, A. J., S. P. Pavlou, and W. Hom. 1977. Release of Polychlorinated Biphenyls (PCB) in a Salt-Wedge Estuary as Induced by Dredging of Contaminated Sediments, The Science of the Total Environment, in press.

5. McClellan, P. M. 1954. An Area and Volume Study of Puget Sound, Washington, Technical Report No. 21, Department of Oceanography, University of Washington, Seattle.

6. U.S. Environmental Protection Agency. 1974. Puget Sound 305-A Report. Report No. EPA 910/7-74-001. US EPA Region X, Surveillance and Analysis Division, Seattle, Washington.

7. Hom, W. 1977. Masters Thesis, Department of Oceanography, University of Washington, Seattle, in preparation.

8. Schell, W. R., E. E. Collias, A. Nevissi, and C. C. Ebbesmeyer. 1976. Trace Contaminants from Duwamish River Dredge Spoils Deposited Off Fourmile Rock in Elliott Bay. The Municipality of Metropolitan Seattle, Washington.

9. Thorslund, A. E. 1975. Disposal of Contaminated Spoil in a Stratified Fjord - An Example From the Swedish Coast, Watten, 31:133-138.

10. Young, A. W., R. W. Buddemeir, and A. W. Fairhall. 1967. A new 60 Liter Water Sampler Built From a Beer Keg, Limnology & Oceanography, 14:634-637.

11. Thompson, J. R., Jr., Ed. 1974. Analysis of Pesticide Residues in Human and Environmental Samples. Primate and Pesticide Laboratory, U.S. Environmental Protection Agency, Perrine, Florida.

12. Sherma, J. 1976. Manual of Quality Control for Pesticides and Related Compounds in Human and Environmental Samples. Report No. EPA 600/1-76-017, U.S. Environmental Protection Agency, Office of Research and Development, Health Effects Research Laboratory, Research Triangle Park, North Carolina.

13. U.S. Department of Health, Education, and Welfare, Food and Drug Administration. 1977. Pesticide Analytical Manual. Food and Drug Administration, Office of the Associate Commissioner for Compliance, Rockville, Maryland.

14. U.S. Environmental Protection Agency. 1971. Methods for Chemical Analysis of Water and Wastes. Report No. EPA 16020-07/71. US Environmental Protection Agency, National Environmental Research Center, Analytical Quality Control Laboratory, Cincinnati, Ohio.

15. Paquette, R. G. 1958. A Modification of the Wenner-Smith-Soule Salinity Bridge for the Determination of Salinity of Sea Water. Technical Report No. 61, Department of Oceanography, University of Washington, Seattle.

16. Thompson, T. G., and R. J. Robinson. 1939. Notes on the Determination of Dissolved Oxygen in Sea Water, Journal of Marine Research, 2:1-8.

17. Dexter, R. N., and S. P. Pavlou. 1976. Characterization of Polychlorinated Biphenyl Distributions in the Marine Environment, Bulletin of Environmental Contamination & Toxicology, 16:477-482.

18. Dixon, W. J., and I. J. Massey. 1969. Introducton to Statistical Analysis. McGraw-Hill, New York. 638 p.

19. Scheffe, H. 1959. The Analysis of Variance. Wiley and Sons, New York. 477 p.

20. Pavlou, S. P., K. A. Krogslund, R. N. Dexter, and J. R. Clayton. 1973. Data Report: R/V ONAR Cruises 434, 450, 469, and 502. Hydrographic, Chemical, and Biological Measurements. Special Report No. 54, Reference No. M 73-81, Department of Oceanography, University of Washington, Seattle.

21. Blazevich, J. N., A. R. Gaylor, G. J. Vasconcelos, R. H. Reick, and S. V. W. Pope. 1977. Monitoring of Trace Constituents During PCB Recovery Dredging Opeations, Duwamish Waterway. Report No. EPA 910/9-77-039, U.S. Environmental Protection Agency, Region X, Seattle, Washington.

22. Sheldon, R. W. 1972. Size Separation of Marine Seston by Membrane and Glass-Fiber Filters, Limnology & Oceanography, 17:494-498.

23. Albro, P. W. and L. Fishbein. 1972. Quantitative and Qualitative Analysis of Polychlorinated Biphenyls by Gas-Liquid Chromatography and Flame Ionization Detection. I. One to Three Chlorine Atoms. Journal of Chromatography, 69:273-283.

24. Ugawa, M., A. Nakamura, and T. Kaskimoto. 1973. Studies on a Calculation Method for Polychlorinated Biphenyl Isomers (PCB's), in F. Carlston, F. Korte, and M. Goto, Eds., New Methods in Environmental Chemistry and Toxicology, a Collection of Papers Presented at the International Symposium on Ecological Chemistry, Susino, Japan, November, 1973. International Academic Printing, Totsuka, Japan. pp. 253-267.

25. Webb, R. G., and A. C. McCall. 1973. Quantitative PCB Standards for Electron Capture Gas Chromatography, Journal of Chromatographic Science, 11:366-373.

26. Thurston, A. 1971. PCB Newsletter No. 3, July, 1971, as Reported in Hutzinger et al, The Chemistry of PCB, CRC Press, Cleveland, 269 p.

27. Monsanto Co. 1972. Presentation to the Interdepartmental Task Force on PCB, Washington, May 15, 1972, as Reported in Hutzinger et al, The Chemistry of PCB, CRC Press, Cleveland, 269 p.

In accordance with letter from DAEN-RDC, DAEN-ASI dated 22 July 1977, Subject: Facsimile Catalog Cards for Laboratory Technical Publications, a facsimile catalog card in Library of Congress MARC format is reproduced below.

Pavlou, Spyros P

Aquatic disposal field investigations, Duwamish Waterway disposal site, Puget Sound, Washington; Appendix E: Release and distribution of polychlorinated biphenyls induced by open-water dredge disposal activities / by Spyros P. Pavlou ... [et al.], Department of Oceanography, University of Washington, Seattle, Washington. Vicksburg, Miss. : U. S. Waterways Experiment Station ; Springfield, Va. : available from National Technical Information Service, 1978.

96, [449] p. : ill. ; 27 cm. (Technical report - U. S. Army Engineer Waterways Experiment Station ; D-77-24, Appendix E)

Prepared for Office, Chief of Engineers, U. S. Army, Washington, D. C., under Contract No. DACW39-76-C-0167 (DMRP Work Unit No. 1A10D)

Appendices A'-E' on microfiche in pocket.

References: p. 94-96.

(Continued on next card)

Pavlou, Spyros P

Aquatic disposal field investigations, Duwamish Waterway disposal site, Puget Sound, Washington; Appendix E: Release and distribution of polychlorinated biphenyls induced by open-water dredge disposal activities ... 1978. *(Card 2)*

1. Disposal areas. 2. Dredged material. 3. Dredged material disposal. 4. Duwamish Waterway. 5. Field investigations. 6. Polychlorinated biphenyls. 7. Sediment. I. United States. Army. Corps of Engineers. II. Washington (State). University. Dept. of Oceanography. III. Series: United States. Waterways Experiment Station, Vicksburg, Miss. Technical report ; D-77-24, Appendix E.

TA7.W34 no.D-77-24 Appendix E

TECHNICAL REPORT D-77-24, AQUATIC DISPOSAL FIELD INVESTIGATIONS
DUWAMISH WATERWAY DISPOSAL SITE, PUGET SOUND, WASHINGTON.

APPENDIX A': TABULATION OF CHEMICAL DATA
APPENDIX B': DESCRIPTION OF THE LARGE VOLUME FILTER
APPENDIX C': SPECTRAL ANALYSIS TECHNIQUE
APPENDIX D': DATA REDUCTION
APPENDIX E': HYDROGRAPHY DATA LIST AND DEPTH PROFILES

DREDGED MATERIAL RESEARCH PROGRAM

ENVIRONMENTAL EFFECTS LABORATORY
U S ARMY ENGINEER WATERWAYS EXPERIMENT STATION
P O Box 631
Vicksburg Mississippi 39180

APPENDIX A': TABULATION OF CHEMICAL DATA

This section includes data documentation from (1) the analysis of water, sediment, SPM, elutriates, and interstitial waters for chlorinated biphenyls, and (2) the result from this analysis of sediment for TOC, oil-grease, and percent solids. The data are arranged chronologically by cruise and numerically by station name within each cruise. The data entries are defined below.

Cruise: julian date cruise number.

Station: project grid station name (refer to station charts).

Water Depth: approximate depth in metres of the water column at the station, determined either from meter wheel reading during sediment collections, sonic depth, or estimated from charted depths when sampling was initiated. Stations for which depth is not available are indicated by 99 or 100.

Date: sampling date.

Local Time: Time sampling was initiated (24-hour clock), based on either Pacific Standard or Pacific Daylight time. Stations for which the sampling time is not available are indicated by a 1.

Longitude and Latitude: station location (refer to station charts).

DC: depth code, relative depth number at which sample was taken. For water and SPM, 1 = surface, 2 = 10 metres from bottom and 3 = 1 metre from bottom. For sediment, 1 = upper horizon and 2 = lower horizon.

Depth: The first column in the data section is the depth, in metres, at which the samples were collected. For sediment, elutriates, interstitial waters, TOC, oil-grease, and percent solids, the depth is the depth of the water column. If DC = 1, the sample is from the surface to 10 cm deep. If DC = 2, the sample is from 10 cm to the end of the core.

REPL: The second column indicates the replicate number of that sample. For example, 1/3 indicates that the sample is the first of three replicates. For cruise 35, only one sample was taken.

For sample types: PCB sediment, elutriates, interstitial waters, water, SPM.

2-CB...7-CB: Columns three through eight present the concentrations of the chlorobiphenyls of each degree of chlorination (2 through 7) measured in the sample. A value of .00* indicates either

that the value could not be determined due to analytical interferences or that compounds were present below analytical detectability.

TCB: Column 9 presents the total concentration of chlorobiphenyls measured in the sample.

Time: On cruises 55 and 57, time series samplings for SPM and water were made. The time for the sample is in column 10.

```
------------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
  35      21           1        76  2   3          1      122 18.47   47 31.46
------------------------------------------------------------------------------------------------

DC DEPTH REPL     2CB      3CB      4CB      5CB      6CB      7CB      TCB

TYPE:PCB-SEDIMENT           WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1   1     1/ 2     .00*    27.82    29.18    37.22    23.55     7.11   112.80

TYPE: ELUTRIATES            WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1  99     1/ 2     .00*     3.03     6.18     3.47     1.12      .49    14.28

TYPE:PCT H2O,SOLIDS....     WITH UNITS:PERCENT; UNITLESS RATIO

1   1     1/ 2 H2O    =57.4                   POROSITY   = .3374
               SOLIDS=42.6                    VOID RATIO= .5092

TYPE:OIL AND GREASE         WITH UNITS: MG OIL-GR PER GM DRY MASS

1   1     1/ 2 O-G    = 1.16


                                                      CRUISE- 35  STATION- 21
```

```
-------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
 . 35     22           99        76  2   3          1     122 18.45    47 31.45
-------------------------------------------------------------------------------------------

DC DEPTH REPL      2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:PCB-SEDIMENT           WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1  99      1/ 2   57.66   459.95  1036.50  1132.40    303.91    148.38  2138.80

TYPE: ELUTRIATES            WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1  99      1/ 2     .94     7.12    18.35    15.45      5.05       .44    47.35

TYPE:PCT H2O,SOLIDS....     WITH UNITS:PERCENT; UNITLESS RATIO

1  99      1/ 2 H2O    =52.1                     POROSITY   = .2908
                SOLIDS=47.9                      VOID RATIO= .4101

TYPE:OIL AND GREASE         WITH UNITS: MG OIL-GR PER GM DRY MASS

1  99      1/ 2 O-G    = 1.75



                                                  CRUISE- 35  STATION- 22
```

```
--------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
  35      23           99       76  2   3          1     122 18.43    47 31.44
--------------------------------------------------------------------------------------------

DC DEPTH REPL      2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:PCB-SEDIMENT             WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1  99      1/ 2  119.17   684.51  1614.30  1885.90   589.40   191.21  5084.40

TYPE: ELUTRIATES              WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1  99      1/ 2    7.73    34.05    34.48    14.47     1.63      .33    92.69

TYPE:PCT H2O,SOLIDS....       WITH UNITS:PERCENT; UNITLESS RATIO

1  99      1/ 2 H2O   =56.5                    POROSITY  = .3289
               SOLIDS=43.5                     VOID RATIO= .4901

TYPE:OIL AND GREASE           WITH UNITS: MG OIL-GR PER GM DRY MASS

1  99      1/ 2 O-G    = 2.46


                                                  CRUISE- 35  STATION- 23
```

```
---------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
    35      24            99    76   2   3           1   122 18.42     47 31.43
---------------------------------------------------------------------------------------------

DC DEPTH REPL      2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:PCB-SEDIMENT             WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1  99      1/ 2     .03     51.25    479.86   1326.40    561.35    453.36   2872.30

TYPE: ELUTRIATES              WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1  99      1/ 2     .37      7.19     10.11      6.44      2.58      1.70     28.3[illegible]

TYPE:PCT H2O,SOLIDS....       WITH UNITS:PERCENT; UNITLESS RATIO

1  99      1/ 2 H2O    =47.6                  POROSITY  = .2552
                SOLIDS=52.4                   VOID RATIO= .3427

TYPE:OIL AND GREASE           WITH UNITS: MG OIL-GR PER GM DRY MASS

1  99      1/ 2 O-G    = 1.05


                                                     CRUISE- 35  STATION- 24
```

```
----------------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
  35      25           99       76  2   3          1     122 18.40    47 31.43
----------------------------------------------------------------------------------------------------

DC DEPTH REPL     2CB      3CB      4CB      5CB      6CB      7CB      TCB

TYPE:PCB-SEDIMENT           WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1  99     1/ 2  121.71  1017.50  2360.00  2482.50   751.54   249.02  6982.30

TYPE: ELUTRIATES            WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1  99     1/ 2    1.46    74.57   169.23   150.65    33.35     9.82   439.08

TYPE:PCT H2O,SOLIDS....     WITH UNITS:PERCENT; UNITLESS RATIO

1  99     1/ 2 H2O   =61.0                    POROSITY  = .3712
               SOLIDS=39.0                    VOID RATIO= .5904

TYPE:OIL AND GREASE         WITH UNITS: MG OIL-GR PER GM DRY MASS

1  99     1/ 2 O-G   = 1.41


                                                 CRUISE- 35  STATION- 25
```

```
---------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH    YR MON DAY    LOCAL TIME   LONGITUDE-W LATITUDE-N
   35      26            99       76  2   3            1     122 18.39     47 31.42
---------------------------------------------------------------------------------------------

DC DEPTH REPL      2CB        3CB        4CB        5CB        6CB        7CB        TCB

TYPE:PCB-SEDIMENT            WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1  99      1/ 2  101.02    653.01   1462.70   1733.10    523.65    257.35   4730.90

TYPE: ELUTRIATES             WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1  99      1/ 2   16.91     93.61     37.30     13.15      2.22       .78    163.97

TYPE:PCT H2O,SOLIDS....      WITH UNITS:PERCENT; UNITLESS RATIO

1  99      1/ 2 H2O    =52.8                         POROSITY   = .2967
                SOLIDS=47.2                          VOID RATIO= .4220

TYPE:OIL AND GREASE          WITH UNITS: MG OIL-GR PER GM DRY MASS

1  99      1/ 2 O-G    = 1.33


                                                           CRUISE- 35  STATION- 26
```

```
------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH    YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   35      27           99        76  2   3           1     122 18.37    47 31.41
------------------------------------------------------------------------------------------

DC DEPTH REPL      2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:PCB-SEDIMENT            WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1  99      1/ 2   54.04    461.02    974.64    988.32    262.68     98.39   2839.10

TYPE: ELUTRIATES             WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1  99      1/ 2     .00*    98.10     33.56      8.79      1.14       .36    141.96

TYPE:PCT H2O,SOLIDS....      WITH UNITS:PERCENT; UNITLESS RATIO

1  99      1/ 2 H2O    =56.2                     POROSITY   = .3258
               SOLIDS=43.8                       VOID RATIO= .4832

TYPE:OIL AND GREASE          WITH UNITS: MG OIL-GR PER GM DRY MASS

1  99      1/ 2 O-G    = 1.02



                                                              CRUISE- 35  STATION- 27
```

```
---------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   35      28          99        76  2   3         1      122 18.36     47 31.40
---------------------------------------------------------------------------------------------

DC DEPTH REPL      2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:PCB-SEDIMENT             WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1  99      1/ 2   83.95    381.59    812.66    888.47    288.35     83.81   2538.80

TYPE: ELUTRIATES              WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1  99      1/ 2     .00*    89.74     26.06      9.84      1.07       .35    127.07

TYPE:PCT H2O,SOLIDS....       WITH UNITS:PERCENT; UNITLESS RATIO

1  99      1/ 2 H2O    =54.0                     POROSITY  = .3071
                SOLIDS=46.0                      VOID RATIO= .4433

TYPE:OIL AND GREASE           WITH UNITS: MG OIL-GR PER GM DRY MASS

1  99      1/ 2 O-G    =  .79
```

CRUISE- 35 STATION- 28

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
35	29	99	76 2 3	1	122 18.34	47 31.39

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1	99	1/ 2	89.47	521.87	1107.10	1149.50	331.92	107.68	3307.50
TYPE: ELUTRIATES				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	99	1/ 2	.01*	61.53	43.45	15.58	1.39	.48	122.43

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1 99 1/ 2 H2O =46.4 POROSITY = .2460
SOLIDS=53.6 VOID RATIO= .3263

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1 99 1/ 2 O-G = .96

CRUISE- 35 STATION- 29

```
------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
  35      30          99        76  2   3          1     122 18.33    47 31.38
------------------------------------------------------------------------------------

DC DEPTH REPL      2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:PCB-SEDIMENT            WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1  99      1/ 2      .01*     3.72      5.88      4.62       .84       .38     15.45

TYPE: ELUTRIATES             WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1  99      1/ 2      .00*    39.56     16.44      4.48       .53       .09     61.11

TYPE:PCT H2O,SOLIDS....      WITH UNITS:PERCENT; UNITLESS RATIO

1  99      1/ 2 H2O    =53.7                      POROSITY  = .3046
                SOLIDS=46.3                       VOID RATIO= .4380

TYPE:OIL AND GREASE          WITH UNITS: MG OIL-GR PER GM DRY MASS

1  99      1/ 2 O-G    =  .07
```

```
----------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MCN DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
    35     31            99      76  2   3           1     122 18.31    47 31.37
----------------------------------------------------------------------------------------

DC DEPTH REPL       2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:PCB-SEDIMENT             WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1  99      1/ 2   37.32    263.94    488.60    368.75     84.03     44.21   1286.90

TYPE: ELUTRIATES              WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1  99      1/ 2    7.79     25.04     20.98      6.79      1.03       .00*    61.64

TYPE:PCT H2O,SOLIDS....       WITH UNITS:PERCENT; UNITLESS RATIO

1  99      1/ 2 H2O    =51.7                     POROSITY   = .2880
                SOLIDS=48.3                      VOID RATIO= .4046

TYPE:OIL AND GREASE           WITH UNITS: MG OIL-GR PER GM DRY MASS

1  99      1/ 2 O-G    = 1.03



                                                 :  CRUISE- 35  STATION- 31
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
35	32	99	76 2 3	1	122 18.30	47 31.36

DC	DEPTH	REPL		2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT					WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1	99	1/ 2		88.99	450.72	623.28	453.62	103.66	48.16	1768.40
TYPE: ELUTRIATES					WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	99	1/ 2		5.69	27.25	23.90	6.57	.84	.30	64.55

TYPE:PCT H2O,SOLIDS....   WITH UNITS:PERCENT; UNITLESS RATIO

1 99 1/ 2 H2O =51.1 POROSITY = .2827
SOLIDS=48.9 VOID RATIO= .3942

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

1 99 1/ 2 O-G = .80

CRUISE- 35 STATION- 32

```
-------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MC    Y   LOCAL TIME  LONGITUDE-W LATITUDE-N
   35      33          99       76  2              1      122 18.30    47 31.35
-------------------------------------------------------------------------------------

DC DEPTH REPL     2CB      3CB                5CB       6CB       7CB       TCB

TYPE:PCB-SEDIMENT             WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1  99      1/ 2  149.07   839.02  1114.70   765.39   174.36     61.62  3104.20

TYPE: ELUTRIATES              WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1  99      1/ 2   13.89    72.31    45.76    14.01      1.56      1.07   148.61

TYPE:PCT H2O,SOLIDS....       WITH UNITS:PERCENT; UNITLESS RATIO

1  99      1/ 2 H2O    =50.0                   POROSITY  = .2737
                SOLIDS=50.0                    VOID RATIO= .3768

TYPE:OIL AND GREASE           WITH UNITS: MG OIL-GR PER GM DRY MASS

1  99      1/ 2 O-G    =  .90
.

                                                 CRUISE- 35  STATION- 33
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
35	34	99	76 2 3	1	122 18.29	47 31.33

OC DEPTH PEPL		2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1 99	1/ 2	7.13	24.13	47.07	53.12	15.93	11.05	158.42
TYPE: ELUTRIATES			WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1 99	1/ 2	.01*	4.77	11.21	6.45	1.45	.31	24.19

TYPE:PCT H2O,SOLIDS....   WITH UNITS:PERCENT; UNITLESS RATIO

1 99   1/ 2 H2O =44.4   POROSITY = .2315
SOLIDS=55.6   VOID RATIO= .3012

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

1 99   1/ 2 O-G = .63

CRUISE- 35 STATION- 34

```
-----------------------------------------------------------------------------------------------
CRUISE  STATION    WATER DEPTH    YR MON DAY    LOCAL TIME   LONGITUDE-W LATTITUDE-N
  35      35           99         76  2   3          1        122 18.29    47 31.32
-----------------------------------------------------------------------------------------------

OC DEPTH REPL        2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:PCB-SEDIMENT              WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1  99      1/ 2     4.75     33.31     60.49     58.60     17.13     12.39    186.67

TYPE: ELUTRIATES               WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1  99      1/ 2      .00*     2.37      6.18      4.32      1.24       .00*    14.12

TYPE:PCT H2O,SOLIDS....        WITH UNITS:PERCENT; UNITLESS RATIO

1  99      1/ 2 H2O    =51.7                     POROSITY   = .2875
                SOLIDS=48.3                      VOID RATIO= .4035

TYPE:OIL AND GREASE            WITH UNITS: MG OIL-GR PER GM DRY MASS

1  99      1/ 2 O-G    =   .49


                                                            CRUISE- 35  STATION- 35
```

```
--------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   35      36           99      76  2   3          1     122 18.28    47 31.30
--------------------------------------------------------------------------------------------

OC DEPTH REPL     2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:PCB-SEDIMENT            WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1  99     1/ 2   18.61     50.89     83.70     94.16     31.20     16.02    294.58

TYPE: ELUTRIATES             WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1  99     1/ 2     .01*     5.05     11.32      7.27      1.92       .00*   25.56

TYPE:PCT H2O,SOLIDS....      WITH UNITS:PERCENT; UNITLESS RATIO

1  99     1/ 2 H2O    =46.9                       POROSITY  = .2500
               SOLIDS=53.1                        VOID RATIO= .3332

TYPE:OIL AND GREASE          WITH UNITS: MG OIL-GR PER GM DRY MASS

1  99     1/ 2 O-G    =  .44



                                                        CRUISE- 35  STATION- 36
```

```
------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   35      37          99       76  2   3          1     122 18.28    47 31.29
------------------------------------------------------------------------------------------

DC DEPTH REPL       2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:PCB-SEDIMENT             WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1   99      1/ 2    4.14     30.64     69.85     80.66     25.03     16.47    226.80

TYPE: ELUTRIATES              WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1   99      1/ 2    2.35      6.00      4.81      3.17       .45       .00*    16.78

TYPE:PCT H2O,SOLIDS....       WITH UNITS:PERCENT; UNITLESS RATIO

1   99      1/ 2 H2O    =47.0                    POROSITY  = .2508
                 SOLIDS=53.0                     VOID RATIO= .3347

TYPE:OIL AND GREASE           WITH UNITS: MG OIL-GR PER GM DRY MASS

1   99      1/ 2 O-G    =  .49
```

CRUISE- 35 STATION- 37

```
--------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   35      38            99      76  2   3            1    122 18.27    47 31.27
--------------------------------------------------------------------------------------------

DC DEPTH REPL      2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:PCB-SEDIMENT            WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1   99     1/ 2     .01*     3.13      3.55      3.56       .58       .24     11.07

TYPE: ELUTRIATES             WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1   99     1/ 2    1.78      3.50      4.64      2.33       .32       .10     12.66

TYPE:PCT H2O,SOLIDS....      WITH UNITS:PERCENT; UNITLESS RATIO

1   99     1/ 2 H2O    =26.8                     POROSITY  = .1216
                SOLIDS=73.2                      VOID RATIO= .1385

TYPE:OIL AND GREASE          WITH UNITS: MG OIL-GR PER GM DRY MASS

1   99     1/ 2 O-G    =  .04


                                                        CRUISE- 35  STATION- 38
```

```
--------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   35      39          99       76  2   3          1     122 18.26    47 31.26
--------------------------------------------------------------------------------------------

DC DEPTH REPL     2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:PCB-SEDIMENT           WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1  99     1/ 2    3.10     29.50     68.76     91.45     32.56     23.73    240.11

TYPE: ELUTRIATES            WITH UNITS:PICOGPAMS NCB PER GM ML WATER

1  99     1/ 2    2.79      5.31      7.14      3.68       .92       .49     20.34

TYPE:PCT H2C,SOLIDS....     WITH UNITS:PERCENT; UNITLESS RATIO

1  99     1/ 2 H2O    =54.5                     POROSITY  = .3115
               SOLIDS=45.5                      VOID RATIO= .4524

TYPE:OIL AND GREASE         WITH UNITS: MG OIL-GR PER GM DRY MASS

1  99     1/ 2 O-G    =  .75

                                                          CRUISE- 35  STATION- 39
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
37	1	100	76 2 5	1	122 21.49	47 35.46

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1 100	1/ 2	.01*	5.35	30.25	94.13	52.25	35.39	217.38
1 100	2/ 2	.01*	3.76	21.58	64.39	35.47	25.82	151.04

TYPE: INTERSTITIAL WATERS WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1 100	1/ 2	.00*	7.39	28.09	37.83	20.18	3.30	96.84
1 100	2/ 2	.05	2.75	5.95	20.00	5.16	.02	33.92

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1 100	1/ 2	H2O =39.6	POROSITY = .1981
		SOLIDS=60.4	VOID RATIO= .2471
1 100	2/ 2	H2O =37.6	POROSITY = .1853
		SOLIDS=62.4	VOID RATIO= .2274

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1 100	1/ 2	O-G = .59
1 100	2/ 2	O-G = .81

CRUISE- 37 STATION- 1

```
-----------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   37      2          100       76  2   5           1     122 21.44    47 35.46
-----------------------------------------------------------------------------------------

DC DEPTH REPL      2CB      3CB      4CB      5CB      6CB      7CB      TCB

TYPE:PCB-SEDIMENT            WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1 100      1/ 2     .00*     4.36    28.38    75.93    37.15    26.74   172.56
1 100      2/ 2     .00*     2.75    20.83    60.99    34.81    31.15   150.54

TYPE: INTERSTITIAL WATERS    WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1 100      1/ 2     .03      5.39    15.44    16.08    11.77      .01    48.72
1 100      2/ 2     .02     28.00   296.92   350.04    50.60    12.96   738.55

TYPE:PCT H2O,SOLIDS....      WITH UNITS:PERCENT; UNITLESS RATIO

1 100      1/ 2 H2O    =42.6                       POROSITY   = .2185
                SOLIDS=57.4                        VOID RATIO= .2796
1 100      2/ 2 H2O    =45.4                       POROSITY   = .2389
                SOLIDS=54.6                        VOID RATIO= .3140

TYPE:OIL AND GREASE          WITH UNITS: MG OIL-GR PER GM DRY MASS

1 100      1/ 2 O-G   =   .65
1 100      2/ 2 O-G   =   .59

                                                      CRUISE- 37  STATION-  2
```

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
37	3	100	76	2	5	1	122 21.40	47 35.46

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1	100	1/ 2	.00*	8.39	33.08	65.10	23.66	80.92	211.16
1	100	2/ 2	2.58	45.16	107.37	232.58	158.19	146.53	692.41
TYPE: INTERSTITIAL WATERS				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	100	1/ 2	.00*	1.84	19.99	33.33	13.49	2.65	71.32
1	100	2/ 2	.00*	3.18	6.23	9.54	14.27	.00*	33.27

TYPE:PCT H2O,SOLIDS....   WITH UNITS:PERCENT; UNITLESS RATIO

1	100	1/ 2	H2O =37.3	POROSITY = .1834
			SOLIDS=62.7	VOID RATIO= .2245
1	100	2/ 2	H2O =42.1	POROSITY = .2151
			SOLIDS=57.9	VOID RATIO= .2740

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

1	100	1/ 2	O-G = .84
1	100	2/ 2	O-G = 1.27

CRUISE- 37 STATION- 3

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
37	4	100	76	2	5	1	122 21.35	47 35.46

DC DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1 100	1/ 2	.00*	2.96	25.74	94.86	61.79	47.62	232.98
1 100	2/ 2	.01*	7.44	40.59	124.93	77.04	60.04	310.05
TYPE: INTERSTITIAL WATERS			WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1 100	1/ 2	.03	3.60	14.22	6.94	2.09	.01	26.90
1 100	2/ 2	.05	22.08	33.62	43.63	17.65	11.05	128.09

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

```
1 100    1/ 2 H2O    =45.4                 POROSITY   = .2390
              SOLIDS=54.6                  VOID RATIO= .3140
1 100    2/ 2 H2O    =45.8                 POROSITY   = .2421
              SOLIDS=54.2                  VOID RATIO= .3195
```

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
1 100    1/ 2 O-G   = 1.03
1 100    2/ 2 O-G   =  .73
```

CRUISE- 37 STATION- 4

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
37	5	100	76 2 5	1	122 21.49	47 35.43

DC DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCP
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1 100	1/ 2	.00*	2.37	20.26	60.30	27.87	20.14	130.95
1 100	2/ 2	.01	4.97	75.55	341.55	300.85	251.44	974.38
TYPE: INTERSTITIAL WATERS			WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1 100	1/ 2	.05	3.89	24.19	58.34	21.97	19.09	127.52
1 100	2/ 2	.04	7.21	35.78	57.34	25.05	.02	125.44

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1 100	1/ 2	H2O =34.8	POROSITY = .1675
		SOLIDS=65.2	VOID RATIO= .2012
1 100	2/ 2	H2O =38.5	POROSITY = .1912
		SOLIDS=61.5	VOID RATIO= .2365

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1 100	1/ 2	O-G = 1.02
1 100	2/ 2	O-G = .56

CRUISE- 37 STATION- 5

```
--------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   37      6          100       76  2   5         1       122 21.44    47 35.43
--------------------------------------------------------------------------------------------

DC DEPTH REPL      2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:PCB-SEDIMENT            WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1 100     1/ 2      .00*     3.78     26.46     92.58     64.73     44.28    231.84

TYPE: INTERSTITIAL WATERS    WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1 100     1/ 2      .05     21.26     44.78     39.01     17.66     14.88    137.65

TYPE:PCT H2O,SOLIDS....      WITH UNITS:PERCENT; UNITLESS RATIO

1 100     1/ 2 H2O    =39.9                     POROSITY   = .2006
               SOLIDS=60.1                      VOID RATIO= .2510

TYPE:OIL AND GREASE          WITH UNITS: MG OIL-GR PER GM DRY MASS

1 100     1/ 2 O-G    =   .50
1 100     2/ 2 O-G    =   .00
```

CRUISE- 37 STATION- 6

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
37	7	100	76	2	5	1	122 21.40	47 35.43

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS						
1	100	1/ 2	.01	4.92	29.72	92.42	41.13	32.67	200.88
1	100	2/ 2	.01	4.28	30.74	77.93	34.92	23.67	171.55
TYPE: INTERSTITIAL WATERS			WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1	100	1/ 2	.12	.14	12.04	30.11	8.80	.04	51.25
1	100	2/ 2	.05	12.26	24.00	22.41	11.05	7.25	77.02

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

```
1 100     1/ 2 H2O    =36.2                 POROSITY   = .1762
               SOLIDS=63.8                  VOID RATIO= .2139
1 100     2/ 2 H2O    =38.1                 POROSITY   = .1885
               SOLIDS=61.9                  VOID RATIO= .2323
```

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
1 100     1/ 2 O-G   =  .73
1 100     2/ 2 O-G   =  .47
```

CRUISE- 37 STATION- 7

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
37	8	100	76 2 5	1	122 21.35	47 35.43

DC DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1 100	1/ 2	2.24	13.87	94.41	177.17	63.67	43.61	394.97
1 100	2/ 2	.01	3.53	21.92	68.65	35.14	26.77	156.02
TYPE: INTERSTITIAL WATERS			WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1 100	1/ 2	.03	29.34	36.62	41.17	13.64	4.54	125.34
1 100	2/ 2	.04	39.27	174.70	135.68	22.51	8.06	380.26

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1 100	1/ 2 H2O =43.8		POROSITY = .2271
	SOLIDS=56.2		VOID RATIO= .2939
1 100	2/ 2 H2O =46.0		POROSITY = .2432
	SOLIDS=54.0		VOID RATIO= .3214

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1 100 1/ 2 O-G = .61
1 100 2/ 2 O-G = .66

CRUISE- 37 STATION- 8

```
------------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   37      9          100       76  2   5         1      122 21.49    47 35.40
------------------------------------------------------------------------------------------------

OC DEPTH REPL      2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:PCB-SEDIMENT            WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1 100      1/ 2    .01       3.85     29.59    108.67     74.19     66.66    282.97
1 100      2/ 2    .01*      2.53     25.02     89.80     52.15     36.15    205.66

TYPE: INTERSTITIAL WATERS    WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1 100      1/ 2    .03       8.95       .03      8.64      5.29       .01*    22.94
1 100      2/ 2    .03      25.66     31.82     48.63      7.39       .01    113.55

TYPE:PCT H2O,SOLIDS....      WITH UNITS:PERCENT; UNITLESS RATIO

1 100      1/ 2 H2O    =43.7                  POROSITY   = .2264
                SOLIDS=56.3                   VOID RATIO= .2927
1 100      2/ 2 H2O    =31.9                  POROSITY   = .1504
                SOLIDS=68.1                   VOID RATIO= .1769

TYPE:OIL AND GREASE          WITH UNITS: MG OIL-GR PER GM DRY MASS

1 100      1/ 2 O-G    =   .54
1 100      2/ 2 O-G    =   .31

                                                   CRUISE- 37  STATION-   9
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
37	10	100	76 2 5	1	122 21.44	47 35.40

DC DEPTH REPL		2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT		WITH UNITS:NANOGRAMS NCB PER GM DRY MASS						
1 100	1/ 2	.01*	2.66	24.02	71.76	35.62	24.35	158.42
1 100	2/ 2	.01*	1.93	15.55	44.54	22.40	16.62	101.05
TYPE: INTERSTITIAL WATERS		WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1 100	1/ 2	.09	16.32	12.47	20.62	21.54	.03	71.08
1 100	2/ 2	.04	15.00	18.46	35.33	15.39	4.10	88.32

TYPE:PCT H2O,SOLIDS....   WITH UNITS:PERCENT; UNITLESS RATIO

1 100	1/ 2 H2O =37.2	POROSITY	= .1830
	SOLIDS=62.8	VOID RATIO	= .2240
1 100	2/ 2 H2O =41.0	POROSITY	= .2081
	SOLIDS=59.0	VOID RATIO	= .2627

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

1 100	1/ 2 O-G	= .32
1 100	2/ 2 O-G	= .45

CRUISE- 37 STATION- 10

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
37	11	100	76 2 5	1	122 21.40	47 35.40

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCP
1 100	1/ 2	.02	1.22	20.02	195.55	193.94	326.86	737.60
1 100	2/ 2	.01*	2.37	20.61	59.22	25.18	16.54	123.92

TYPE: INTERSTITIAL WATERS WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCP
1 100	1/ 2	.04	4.33	42.65	32.02	14.80	2.55	96.39
1 100	2/ 2	.04	46.24	22.65	27.48	4.87	.01	101.30

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

```
1 100     1/ 2 H2O    =40.0                  POROSITY   = .2011
               SOLIDS=60.0                   VOID RATIO= .2517
1 100     2/ 2 H2O    =38.8                  POROSITY   = .1929
               SOLIDS=61.2                   VOID RATIO= .2390
```

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
1 100     1/ 2 O-G   =  .20
1 100     2/ 2 O-G   =  .20
```

CRUISE- 37 STATION- 11

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
37	12	100	76 2 5	1	122 21.35	47 35.40

DC DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1 100	1/ 2	.01*	2.89	19.93	51.23	22.84	13.67	110.57
1 100	2/ 2	33.06	102.09	243.22	353.86	170.84	130.90	1034.00
TYPE: INTERSTITIAL WATERS			WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1 100	1/ 2	.06	4.15	10.04	23.20	18.03	3.48	58.97
1 100	2/ 2	.05	19.79	38.55	50.35	17.47	14.38	140.59

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1 100	1/ 2 H2O =35.5	POROSITY = .1722
	SOLIDS=64.5	VOID RATIO= .2081
1 100	2/ 2 H2O =43.7	POROSITY = .2265
	SOLIDS=56.3	VOID RATIO= .2929

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1 100 1/ 2 O-G = .69
1 100 2/ 2 O-G = 1.36

CRUISE- 37 STATION- 12

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
37	13	100	76 2 5	1	122 21.49	47 35.37

DC DEPTH REPL		2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT		WITH UNITS:NANOGRAMS NCB PER GM DRY MASS						
1 100	1/ 2	.02	7.04	65.51	523.61	422.84	735.37	1754.40
1 100	2/ 2	.01*	3.53	28.36	73.94	28.52	16.49	150.85
TYPE: INTERSTITIAL WATERS		WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1 100	1/ 2	.00*	7.61	32.61	37.46	27.79	.00*	105.60
1 100	2/ 2	.00*	3.16	59.47	32.13	15.96	.00*	110.80

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

```
1 100      1/ 2 H2O    =32.7                      POROSITY   = .1551
                SOLIDS=67.3                       VOID RATIO= .1835
1 100      2/ 2 H2O    =37.6                      POROSITY   = .1851
                SOLIDS=62.4                       VOID RATIO= .2271
```

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
1 100      1/ 2 O-G   =  .47
1 100      2/ 2 O-G   =  .59
```

CRUISE- 37 STATION- 13

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
37	14	100	76 2 5	1	122 21.44	47 35.37

DC DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCP
TYPE:PCB-SEDIMENT		**WITH UNITS:NANOGRAMS NCB PER GM DRY MASS**						
1 100	1/ 2	.01*	5.15	75.70	220.53	91.47	73.88	466.73
1 100	2/ 2	.01	6.18	49.88	193.20	130.82	107.00	487.10
TYPE: INTERSTITIAL WATERS		**WITH UNITS:PICOGRAMS NCB PER GM ML WATER**						
1 100	1/ 2	.00*	20.45	157.00	171.60	99.23	18.88	467.10
1 100	2/ 2	.00*	2.56	19.24	36.32	11.89	.00*	70.08

TYPE:PCT H2O,SOLIDS....   WITH UNITS:PERCENT; UNITLESS RATIO

1 100	1/ 2	H2O =38.3	POROSITY	= .1896
		SOLIDS=61.7	VOID RATIO	= .2339
1 100	2/ 2	H2O =37.0	POROSITY	= .1815
		SOLIDS=63.0	VOID RATIO	= .2217

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

1 100	1/ 2	O-G	= .55
1 100	2/ 2	O-G	= .31

CRUISE- 37 STATION- 14

```
--------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
    37       15           100   76   2   5            1  122 21.40    47 35.37
--------------------------------------------------------------------------------------
.
DC DEPTH PEPL      2CB      3CB      4CB      5CB      6CB      7CB      TCB


TYPE:PCB-SEDIMENT           WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1 100       1/ 2     .01*     3.16    38.11   134.69    61.28    35.46   272.70
1 100       2/ 2     .01*     4.01    23.38    71.40    44.33    31.40   174.53


TYPE: INTERSTITIAL WATERS   WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1 100       1/ 2     .00*    10.61    19.61     6.04     .00*     .00*    36.43
1 100       2/ 2     .00*     2.42     3.32     3.57     .51      .00*     9.89


TYPE:PCT H2O,SOLIDS....     WITH UNITS:PERCENT; UNITLESS RATIO

1 100       1/ 2 H2O    =30.0                   POROSITY   = .1391
                 SOLIDS=70.0                    VOID RATIO= .1615
1 100       2/ 2 H2O    =38.0                   POROSITY   = .1877
                 SOLIDS=62.0                    VOID RATIO= .2310


TYPE:OIL AND GREASE         WITH UNITS: MG OIL-GR PER GM DRY MASS

1 100       1/ 2 O-G    =  .29
1 100       2/ 2 O-G    =  .30

                                                   CRUISE- 37  STATION- 15
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
37	16	100	76 2 5	1	122 21.35	47 35.37

DC DEPTH REPL		2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT		WITH UNITS:NANOGRAMS NCB PER GM DRY MASS						
1 100	1/ 2	.01	6.81	93.03	216.84	64.74	32.43	413.88
1 100	2/ 2	.01*	4.10	28.22	76.85	39.01	28.02	176.22
TYPE: INTERSTITIAL WATERS		WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1 100	1/ 2	.00*	3.39	26.53	27.17	13.59	3.77	74.49
1 100	2/ 2	.00*	2.65	6.47	16.40	12.06	.00*	37.63

TYPE:PCT H2O,SOLIDS....   WITH UNITS:PERCENT; UNITLESS RATIO

1 100	1/ 2	H2O =38.7	POROSITY = .1925
		SOLIDS=61.3	VOID RATIO= .2384
1 100	2/ 2	H2O =43.6	POROSITY = .2255
		SOLIDS=56.4	VOID RATIO= .2912

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

1 100	1/ 2	O-G =	.58
1 100	2/ 2	O-G =	.68

CRUISE- 37 STATION- 16

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
37	17	100	76	2	5	1	122 22.39	47 35.33

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1	100	1/ 2	.00*	.94	11.31	33.03	13.12	7.91	66.31
1	100	2/ 2	.00*	1.44	9.20	24.24	11.31	8.31	54.51
TYPE: INTERSTITIAL WATERS				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	100	1/ 2	.06	2.40	4.73	7.63	3.43	.02	18.27
1	100	2/ 2	.00*	21.12	16.65	26.98	9.17	.00*	74.00

TYPE:PCT H2O,SOLIDS....   WITH UNITS:PERCENT; UNITLESS RATIO

1 100	1/ 2	H2O =30.9	POROSITY = .1442	
		SOLIDS=69.1	VOID RATIO= .1684	
1 100	2/ 2	H2O =34.4	POROSITY = .1653	
		SOLIDS=65.6	VOID RATIO= .1980	

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

1 100	1/ 2	O-G	= .56
1 100	2/ 2	O-G	= .27

CRUISE- 37 STATION- 17

```
--------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   37      18         100       76  2   5          1      122 22.34    47 35.30
--------------------------------------------------------------------------------------

DC DEPTH REPL      2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:PCB-SEDIMENT            WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1 100      1/ 2      .00*      1.67     10.30     27.41     12.29      8.50     60.18
1 100      2/ 2      .00*      1.51     10.27     25.46     10.81      8.75     56.79

TYPE: INTERSTITIAL WATERS    WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1 100      1/ 2      .00*      .00*      9.81      9.25      9.19      .00*     28.26
1 100      2/ 2      .00*      4.67     15.44     15.99     13.97      .00*     50.19

TYPE:PCT H2O,SOLIDS....      WITH UNITS:PERCENT; UNITLESS RATIO

1 100      1/ 2 H2O    =34.7                     POROSITY   = .1672
                SOLIDS=65.3                      VOID RATIO= .2008
1 100      2/ 2 H2O    =35.4                     POROSITY   = .1714
                SOLIDS=64.6                      VOID RATIO= .2068

TYPE:OIL AND GREASE          WITH UNITS: MG OIL-GR PER GM DRY MASS

1 100      1/ 2 O-G    =  .25
1 100      2/ 2 O-G    = 1.04

                                                    CRUISE- 37  STATION- 18
```

```
------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   37      19         100        76  2   5          1      122 20.38    47 36.00
------------------------------------------------------------------------------------------

DC DEPTH REPL      2CB      3CB      4CB      5CB      6CB      7CB      TCB

TYPE:PCB-SEDIMENT            WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1 100      1/ 2     .01*     7.15    51.09   176.61    94.07    58.73   387.65
1 100      2/ 2     .01*    22.70    74.17   199.57    97.09    70.42   463.96

TYPE: INTERSTITIAL WATERS   WITH UNITS:PICOGRAMS NCB PER GM ML WATER

1 100      1/ 2     .04     13.86    47.13    57.23    27.81    18.48   164.56
1 100      2/ 2     .04     21.40   137.42   123.88    23.79    11.63   318.17

TYPE:PCT H2O,SOLIDS....     WITH UNITS:PERCENT; UNITLESS RATIO

1 100      1/ 2 H2O    =43.0                     POROSITY   = .2218
                SOLIDS=57.0                      VOID RATIO= .2850
1 100      2/ 2 H2O    =46.5                     POROSITY   = .2470
                SOLIDS=53.5                      VOID RATIO= .3280

TYPE:OIL AND GREASE         WITH UNITS: MG OIL-GR PER GM DRY MASS

1 100      1/ 2 O-G    = 1.99
1 100      2/ 2 O-G    = 2.01

                                                   CRUISE- 37  STATION- 19
```

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
37	20	100	76	2	5	1	122 20.38	47 35.58

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS						
1	100	1/ 2	.01*	7.21	42.44	105.29	46.83	33.90	235.67
1	100	2/ 2	.00*	2.88	20.81	64.49	37.78	30.43	156.39
TYPE: INTERSTITIAL WATERS			WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1	100	1/ 2	.02	3.38	4.87	15.79	10.27	6.18	40.51
1	100	2/ 2	.05	14.48	41.62	39.32	17.45	5.83	118.75

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

```
1 100      1/ 2 H2O    =41.5                 POROSITY   = .2114
                SOLIDS=58.5                  VOID RATIO= .2681
1 100      2/ 2 H2O    =37.7                 POROSITY   = .1856
                SOLIDS=62.3                  VOID RATIO= .2279
```

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
1 100      1/ 2 O-G    = 1.49
1 100      2/ 2 O-G    = 1.54
```

CRUISE- 37 STATION- 20

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
55	6	1	76 2 23	840	122 21.44	47 35.43

TYPE: WATER WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB	TIME
1	1	1/ 2	.00*	.72	1.44	1.81	.28	.13	4.38	840
2	52	1/ 2	.00*	.55	.98	1.15	.27	.06	3.01	846
3	60	1/ 2	.00*	1.87	3.34	2.41	.49	.00*	8.11	852
1	1	1/ 2	.00*	.53	1.10	1.20	.42	.26	3.51	925
2	52	1/ 2	.00*	.44	.58	.60	.09	.00*	1.71	930
3	60	1/ 2	.00*	420.80	813.60	674.20	178.09	75.48	2162.20	935
1	1	1/ 2	.00*	3.06	2.46	1.57	.21	.00*	7.30	955
2	52	1/ 2	.00*	7.40	17.29	13.68	3.22	1.42	43.01	1002
3	62	1/ 2	.00*	7.92	17.57	13.23	2.21	1.35	42.29	1013
1	1	1/ 2	.00*	3.51	5.07	11.29	3.74	1.32	24.93	1025
2	52	1/ 2	.00*	.22	.91	1.13	.51	.31	3.09	1027
3	62	1/ 2	.00*	12.21	19.12	16.81	4.82	1.21	54.16	1032
1	1	1/ 2	.00*	1.26	1.87	1.59	.46	.05	5.23	1120
2	52	1/ 2	.00*	.60	.86	.80	.21	.00*	2.47	1122
1	1	1/ 2	.00*	1.34	1.67	2.23	.61	.55	6.39	1150
2	54	1/ 2	.00*	.86	.75	1.21	.35	.20	3.37	1155
3	64	1/ 2	.00*	15.42	32.24	25.95	6.58	3.65	83.84	1200
1	1	1/ 2	.00*	.00*	1.77	1.65	.60	.00*	4.02	1220
2	54	1/ 2	.00*	.72	1.29	.95	.27	.17	3.40	1223
3	64	1/ 2	.00*	13.11	20.21	11.52	2.09	.62	47.55	1230
1	1	1/ 2	.00*	.88	3.22	2.66	.70	.26	7.72	1251
2	52	1/ 2	.00*	1.82	4.47	2.66	.64	.39	9.98	1255
3	62	1/ 2	.00*	2.70	4.40	3.39	.69	.33	11.51	1300

CRUISE- 55 STATION- 6

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
55	6	62	76 2 23	1300	122 21.44	47 35.43

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB	TIME
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1	1	1/ 2	.00*	.34	1.63	1.26	.30	.00*	3.53	1330
2	52	1/ 2	.00*	1.86	4.69	4.20	1.03	.42	12.20	1337
3	60	1/ 2	.00*	5.08	9.14	6.39	1.18	.71	22.50	1343
1	1	1/ 2	.00*	6.10	12.18	7.83	1.14	.26	27.51	1445
2	52	1/ 2	.00*	2.70	5.57	3.77	.89	.67	13.60	1448
3	60	1/ 2	.00*	35.55	84.89	32.30	5.89	3.26	161.89	1501
1	1	1/ 2	.00*	2.95	5.69	3.61	.99	.00*	13.24	1515
2	52	1/ 2	.00*	9.98	18.89	11.48	1.93	.00*	42.28	1519
3	62	1/ 2	.00*	37.96	49.34	24.51	6.17	4.40	122.38	1524
1	1	1/ 2	.00*	.61	1.79	1.88	.55	.12	4.95	1547
2	52	1/ 2	.00*	10.57	15.65	7.20	1.22	.64	35.28	1551
3	62	1/ 2	.00*	6.89	10.68	7.03	1.81	1.41	27.83	1557
1	1	1/ 2	.00*	2.93	3.23	2.80	.99	.76	10.71	1643
2	52	1/ 2	.00*	2.27	3.71	3.13	.66	.11	9.88	1646
3	62	1/ 2	.00*	28.03	36.89	19.25	5.19	2.23	93.59	1651
TYPE: SPM				WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1	1	1/ 2	.00*	.73	.88	.50	.12	.05	2.28	840
2	52	1/ 2	.00*	.29	.58	.70	.25	.09	1.91	846
3	60	1/ 2	.00*	.26	.67	.64	.16	.07	1.80	852
1	1	1/ 2	.00*	.22	.66	.51	.14	.07	1.60	925

CRUISE- 55 STATION- 6

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
55	6	1	76 2 23	925	122 21.44	47 35.43

TYPE: SPM WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB	TIME
2	52	1/ 2	.00*	1.74	2.85	1.37	.59	.14	6.69	930
3	60	1/ 2	.00*	606.05	1242.10	931.60	303.70	145.71	3229.20	935
1	1	1/ 2	.00*	.06	.63	.17	.20	.05	1.11	955
2	52	1/ 2	.00*	2.91	5.61	4.88	1.38	.26	15.04	1002
3	60	1/ 2	.00*	.23	.49	.50	.12	.06	1.40	1013
1	1	1/ 2	.00*	.27	.51	.56	.16	.01*	1.51	1025
2	52	1/ 2	.00*	.29	.79	.62	.18	.02	1.90	1027
3	60	1/ 2	.00*	4.95	6.62	6.64	2.57	.28	21.06	1032
1	1	1/ 2	.00*	.04	.41	.28	.12	.05	.90	1120
2	52	1/ 2	.00*	.08	.19	.22	.11	.07	.67	1122
3	60	1/ 2	.00*	.21	.11	.22	.12	.04	.70	1127
1	1	1/ 2	.00*	.21	.08	.10	.05	.07	.51	1150
2	52	1/ 2	.00*	.11	.34	.38	.21	.10	1.14	1155
3	60	1/ 2	.00*	.57	1.04	.61	.24	.10	2.56	1200
1	1	1/ 2	.00*	.11	.16	.37	.28	.41	1.33	1220
2	52	1/ 2	.00*	.00*	.09	.55	.18	.04	.86	1223
3	60	1/ 2	.00*	.29	.71	.58	.25	.07	1.90	1230
1	1	1/ 2	.00*	.00*	.26	.20	.12	.07	.65	1251
2	52	1/ 2	.00*	1.22	2.52	1.57	.76	.41	6.48	1255
3	60	1/ 2	.00*	.17	.53	.36	.07	.05	1.18	1300
1	1	1/ 2	.00*	.33	.49	.36	.11	.07	1.36	1330
2	52	1/ 2	.00*	1.74	2.36	2.27	.67	.27	7.32	1337
3	60	1/ 2	.00*	.24	.54	.37	.21	.14	1.50	1343

CRUISE- 55 STATION- 6

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
55	6	60	76 2 23	1343	122 21.44	47 35.43

TYPE: SPM WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB	TIME
1	1	1/ 2	.00*	.25	.69	.48	.17	.00*	1.59	1445
2	52	1/ 2	.00*	.86	2.37	1.67	.85	.00*	5.75	1448
3	60	1/ 2	.00*	1.78	3.17	2.54	.63	.15	8.26	1501
1	1	1/ 2	.00*	.46	.38	.64	.19	.02	1.69	1515
2	52	1/ 2	.00*	13.07	5.89	4.15	1.90	.70	25.72	1519
3	60	1/ 2	.00*	.80	.77	.58	.17	.26	2.58	1524
1	1	1/ 2	.00*	.07	.59	1.44	.58	.26	2.92	1547
2	52	1/ 2	.00*	16.29	6.23	3.66	1.69	.78	28.64	1551
3	60	1/ 2	.00*	.50	.85	1.22	1.29	2.00	5.87	1557
1	1	1/ 2	.00*	3.53	3.93	.26	.33	.25	8.29	1643
2	52	1/ 2	.00*	2.76	1.34	2.28	.77	.99	8.14	1646
3	60	1/ 2	.00*	4.34	1.32	.96	.36	.14	7.12	1651

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
55	17	1	76 2 23	417	122 22.39	47 35.33

TYPE: WATER WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB	TIME
1	1	1/ 2	.00*	.53	.90	.94	.41	.00*	2.78	417
1	1	2/ 2	.00*	.51	.93	.91	.31	.07	2.73	507
2	63	2/ 2	.00*	2.20	3.01	1.76	.40	.00*	7.37	514
2	63	1/ 2	.00*	2.34	3.31	2.08	.53	.00*	8.26	519
3	69	1/ 2	.00*	.56	1.49	1.23	.28	.00*	3.56	531
3	71	2/ 2	.00*	.36	.93	.78	.21	.05	2.33	535
1	1	1/ 2	.00*	2.18	1.98	2.57	.76	.14	7.63	1715
2	37	1/ 2	.00*	.32	.50	.24	.00*	.00*	1.06	1719
3	55	1/ 2	.00*	14.78	16.38	12.39	1.23	.88	45.66	1724
1	1	2/ 2	.00*	1.88	1.83	2.20	.64	.00*	6.55	1727
2	43	2/ 2	.00*	.22	.40	.40	.20	.00*	1.22	1731
3	55	2/ 2	.00*	.30	.39	.19	.02	.00*	.90	1735

CRUISE- 55 STATION- 17

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
55	19	1	76 2 23	745	122 20.38	47 36.00

TYPE: WATER WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REFL	2CB	3CB	4CB	5CB	6CB	7CB	TCB	TIME
1	1	1/ 2	.00*	.52	1.42	1.60	.51	.19	4.24	745
1	1	2/ 2	.00*	.81	1.58	1.62	.48	.00*	4.49	746
2	41	1/ 2	.00*	.37	.71	.56	.13	.00*	1.77	750
2	41	2/ 2	.00*	.48	1.04	1.12	.11	.00*	2.75	752
3	55	1/ 2	.00*	.78	1.19	1.04	.34	.00*	3.35	754
3	55	2/ 2	.00*	.52	1.10	.94	.20	.00*	2.76	755
1	1	1/ 2	.00*	4.20	6.22	8.08	4.09	.55	23.14	1812
2	50	1/ 2	.00*	1.13	1.53	1.05	.18	.04	3.92	1823
3	60	1/ 2	.00*	1.79	3.80	4.91	2.57	2.79	15.86	1827
1	1	2/ 2	.00*	1.34	3.40	3.44	1.53	.68	10.38	1831
3	68	2/ 2	.00*	1.32	2.02	1.42	.37	.00*	5.12	1839
2	49	2/ 2	.00*	1.25	.96	2.17	1.33	.00*	5.71	1843

CRUISE- 55 STATION- 19

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
55	44	1	76 2 23	641	122 21.34	47 35.24

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB	TIME
•										

TYPE: WATER   WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB	TIME
1	1	1/ 2	.00*	1.82	2.01	1.71	.53	.53	6.60	641
1	1	2/ 2	.00*	1.01	2.37	2.48	.71	.08	6.65	645
2	19	1/ 2	.00*	.49	1.17	.98	.29	.00*	2.93	648
2	19	2/ 2	.00*	.46	.77	.78	.16	.00*	2.17	651
3	34	1/ 2	.00*	.89	1.44	.51	.46	.00*	3.30	655
3	34	2/ 2	.00*	.43	.89	.65	.25	.00*	2.22	659
1	1	1/ 2	.00*	4.20	5.96	5.24	2.02	1.26	18.68	1746
2	15	1/ 2	.00*	.33	1.50	1.57	.69	.05	4.14	1750
3	26	1/ 2	.00*	.47	.70	1.40	.07	.00*	2.64	1754
1	1	1/ 2	.00*	1.68	4.89	6.14	3.05	2.22	17.98	1756
2	11	1/ 2	.00*	.98	2.66	3.55	1.71	.12	9.02	1802
3	26	1/ 2	.00*	.40	.92	1.18	.47	.34	3.31	1804

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
57	6	1	76 2 25	837	122 21.44	47 35.43

TYPE: WATER WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB	TIME
1	1	1/ 2	.00*	2.08	2.30	4.79	.71	.20	10.08	
2	50	1/ 2	.00*	14.58	17.40	14.89	2.21	1.04	50.12	841
3	62	1/ 2	.00*	2.37	3.79	2.61	.49	.25	9.51	851
1	1	1/ 2	.00*	1.54	2.91	3.58	1.24	.49	9.76	914
2	54	1/ 2	.00*	34.57	21.35	16.65	3.29	1.67	77.73	916
3	62	1/ 2	.00*	14.01	10.62	10.59	2.17	1.11	38.50	921
1	1	1/ 2	.00*	6.91	7.04	4.26	1.03	.32	19.56	943
2	54	1/ 2	.00*	10.53	6.38	8.08	1.85	.98	27.82	946
3	62	1/ 2	.00*	10.36	16.15	10.80	1.70	.00*	39.02	951
1	1	1/ 2	.00*	2.85	5.28	4.29	.97	.72	14.11	1015
2	54	1/ 2	.00*	2.31	4.37	2.41	.38	.07	9.54	1019
3	62	1/ 2	.00*	20.32	43.06	27.66	4.94	7.88	103.86	1024
1	1	1/ 2	.00*	1.76	2.98	2.18	.54	.30	7.77	1105
2	54	1/ 2	.00*	6.43	5.58	2.81	.55	.00*	15.37	1108
3	62	1/ 2	.00*	4.25	7.11	4.14	.37	.12	15.99	1113
1	1	1/ 2	.00*	.60	1.95	1.58	.54	.00*	4.66	1133
2	54	1/ 2	.00*	89.23	156.68	108.84	30.66	14.66	400.06	1136
3	62	1/ 2	.00*	20.68	12.98	12.66	2.42	1.01	49.75	1140
1	1	1/ 2	.00*	4.40	10.09	6.52	1.19	.96	23.16	1203
2	54	1/ 2	.00*	2.75	4.32	2.54	.49	.29	10.39	1206
3	62	1/ 2	.00*	13.04	22.97	12.31	2.33	3.93	54.58	1213
1	1	1/ 2	.00*	.90	1.53	1.33	.32	.20	4.27	1233
2	54	1/ 2	.00*	3.24	4.90	2.63	.54	.00*	11.31	1235

CRUISE- 57 STATION- 6

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
57	6	54	76 2 25	1235	122 21.44	47 35.43

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB	TIME
TYPE: WATER			WITH UNITS:PICOGRAMS NCB PER GM ML WATER							
3	62	1/ 2	.00*	4.50	6.98	4.13	.87	.17	16.63	
1	1	1/ 2	.00*	.40	1.17	.94	.30	.00*	2.81	1330
2	54	1/ 2	.00*	1.86	3.44	2.20	.60	.50	8.59	1333
3	62	1/ 2	.00*	2.27	4.03	2.71	.49	.27	9.77	1337
1	1	1/ 2	.00*	.57	1.40	1.34	.38	.05	3.74	1400
2	54	1/ 2	.00*	1.00	1.34	.72	.45	.00*	3.50	1402
3	62	1/ 2	.00*	170.06	275.85	175.86	45.55	22.01	689.33	1408
1	1	1/ 2	.00*	1.37	2.58	2.28	.68	.33	7.25	1431
2	54	1/ 2	.00*	.46	1.22	.82	.16	.00*	2.66	1434
3	62	1/ 2	.00*	15.51	43.78	20.76	4.28	1.45	85.78	1440
1	1	1/ 2	.00*	.91	1.37	1.23	.35	.09	3.95	1500
2	54	1/ 2	.00*	3.19	6.51	5.22	1.21	.32	16.45	1503
3	62	1/ 2	.00*	9.91	15.45	9.68	1.49	.00*	36.53	1507
1	1	1/ 2	.00*	2.65	4.48	3.64	1.07	.71	12.54	1622
2	54	1/ 2	.00*	1.28	2.05	1.60	.32	.14	5.40	1625
3	62	1/ 2	.00*	1.00	1.54	1.37	.30	.00*	4.21	1629
TYPE: SPM			WITH UNITS:PICOGRAMS NCB PER GM ML WATER							
1	1	1/ 2	.00*	1.81	.77	.39	.31	.17	3.46	
2	52	1/ 2	.00*	2.03	.67	.60	.41	.72	4.44	841
3	60	1/ 2	.00*	1.74	1.04	.84	.76	.18	4.56	851

CRUISE- 57 STATION- 6

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
57	6	60	76 2 25	851	122 21.44	47 35.43

TYPE: SPM   WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB	TIME
1	1	1/ 2	.00*	.30	.21	.23	.20	.17	1.12	
2	50	1/ 2	.00*	8.77	3.12	.99	.15	.09	13.12	916
3	60	1/ 2	.00*	13.94	7.20	1.39	.33	.37	23.24	921
1	1	1/ 2	.00*	10.71	1.92	.71	.24	.16	13.74	943
2	50	1/ 2	.00*	.56	2.12	2.00	.73	.56	5.97	946
3	60	1/ 2	.00*	1.58	3.17	3.83	1.33	.81	10.71	951
1	1	1/ 2	.00*	.27	.45	.63	.35	.14	1.84	1015
2	50	1/ 2	.00*	.47	2.05	1.93	.56	.28	5.29	1019
3	60	1/ 2	.00*	1.12	4.57	4.19	1.59	.62	12.08	1024
1	1	1/ 2	.00*	.25	.35	.74	.39	.14	1.87	1105
2	50	1/ 2	.00*	.36	.98	1.00	.37	.28	2.99	1108
3	60	1/ 2	.00*	.27	.62	.67	.22	.12	1.90	1113
1	1	1/ 2	.00*	.19	.29	.28	.13	.08	.96	1133
2	50	1/ 2	.00*	81.13	201.18	171.25	58.80	26.06	538.42	1136
3	60	1/ 2	.00*	1.64	6.89	6.07	1.88	1.19	17.67	1140
1	1	1/ 2	.00*	.26	.86	.82	.22	.17	2.33	1203
2	50	1/ 2	.00*	.49	1.02	.91	.32	.26	3.00	1206
3	60	1/ 2	.00*	.68	1.74	3.08	1.26	.41	7.16	1213
1	1	1/ 2	.00*	.15	.31	.26	.09	.05	.85	1233
2	50	1/ 2	.00*	.44	1.60	1.48	.49	.33	4.33	1235
3	60	1/ 2	.00*	.18	.69	.52	.17	.11	1.67	1241
1	1	1/ 2	.00*	.34	.25	.20	.12	.04	.94	1330
2	50	1/ 2	.00*	.34	.94	.98	.38	.21	2.85	1333

CRUISE- 57 STATION- 6

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
57	6	50	76 2 25	1333	122 21.44	47 35.43

TYPE: SPM   WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB	TIME
3	60	1/ 2	.00*	.16	.46	.43	.13	.12	1.30	
1	1	1/ 2	.00*	.47	.58	.65	.15	.08	1.92	1400
2	50	1/ 2	.00*	.20	.48	.45	.16	.11	1.41	1403
3	62	1/ 2	.00*	498.40	711.07	601.09	227.42	139.34	2177.30	1408
1	1	1/ 2	.00*	.57	.80	.94	.36	.27	2.93	1431
2	50	1/ 2	.00*	.53	.95	1.01	.22	.10	2.81	1434
3	60	1/ 2	.00*	2.54	9.08	8.37	2.68	1.37	24.04	1440
1	1	1/ 2	.00*	.50	.87	1.00	.34	.27	2.98	1500
2	50	1/ 2	.00*	1.20	4.31	4.19	1.30	.62	11.62	1503
3	60	1/ 2	.00*	1.15	4.01	4.50	1.54	.61	11.81	1507
1	1	1/ 2	.00*	.98	.92	1.25	.72	.51	4.39	1622
2	50	1/ 2	.00*	.67	1.00	1.05	.24	.12	3.08	1625
3	60	1/ 2	.00*	.54	.95	.89	.21	.11	2.71	1629

CRUISE- 57 STATION- 6

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
57	17	1	76	2	25	711	122 22.39	47 35.33

TYPE: WATER WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB	TIME
1	1	1/ 2	.00*	1.03	1.18	.77	.08	.15	3.22	
2	45	1/ 2	.00*	.98	1.28	.74	.54	.00*	3.53	715
3	54	1/ 2	.00*	.70	1.69	1.12	.23	.00*	3.74	721
1	1	2/ 2	.00*	2.34	5.18	5.70	1.45	.94	15.61	724
2	45	2/ 2	.00*	1.02	2.18	1.00	.16	.14	4.51	727
3	55	2/ 2	.00*	.78	.91	.70	.15	.02	2.56	731
1	1	1/ 2	.00*	.69	.71	1.44	.23	.17	3.24	1646
2	60	1/ 2	.00*	3.31	2.83	2.88	.74	.00*	9.76	1648
3	80	1/ 2	.00*	1.79	1.90	1.79	.29	.03	5.76	1653
1	1	2/ 2	.00*	2.83	5.40	8.03	1.45	.74	18.45	1659
2	55	2/ 2	.00*	1.03	.86	.87	.26	.04	3.06	1701
3	72	2/ 2	.00*	1.24	1.45	3.74	1.49	.00*	7.92	1705

CRUISE- 57 STATION- 17

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
57	19	1	76 2 25	555	122 20.38	47 36.00

TYPE: WATER WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB	TIME
1	1	1/ 2	.00*	1.65	2.24	1.96	.62	.57	7.04	
2	50	1/ 2	.00*	1.30	2.14	.98	.20	.00*	4.62	558
3	64	1/ 2	.00*	3.69	3.98	2.19	.37	.00*	10.23	603
1	1	2/ 2	.00*	1.29	3.27	3.47	1.40	1.56	10.99	607
2	54	2/ 2	.00*	1.75	2.12	1.44	.21	.00*	5.52	611
3	60	2/ 2	.00*	2.85	8.72	7.73	1.52	.49	21.31	620
1	1	1/ 2	.00*	.72	1.64	1.72	.62	.35	5.05	1730
2	45	1/ 2	.00*	1.10	1.62	1.11	.10	.00*	3.93	1732
3	51	1/ 2	.00*	1.77	2.94	1.90	.37	.00*	6.98	1736
1	1	2/ 2	.00*	2.48	8.41	9.23	2.23	.82	23.17	1740
2	48	2/ 2	.00*	1.37	1.46	.88	.19	.06	3.97	1745
3	58	2/ 2	.00*	2.94	4.04	2.38	.44	.09	9.88	1748

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
57	44	1	76 2 25	751	122 21.34	47 35.24

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB	TIME
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1	1	1/ 2	.00*	3.06	4.41	2.85	.90	.00*	11.22	
1	1	2/ 2	.00*	3.79	11.22	10.68	2.20	2.24	30.12	752
2	10	1/ 2	.00*	.95	.97	1.05	.15	.00*	3.13	753
2	10	2/ 2	.00*	.30	.99	1.18	.37	.00*	2.84	754
3	30	1/ 2	.00*	3.09	7.98	8.11	1.06	1.28	21.52	758
3	30	2/ 2	.00*	.91	1.95	1.75	.44	.00*	5.06	759
1	1	1/ 2	.00*	1.81	3.08	1.93	.50	.70	8.02	1714
2	6	1/ 2	.00*	3.15	5.13	1.44	.29	.00*	10.01	1716
3	20	1/ 2	.00*	.00*	2.50	2.09	.37	.09	5.05	1718
1	1	2/ 2	.00*	2.17	2.34	3.74	1.44	.68	10.37	1720
2	10	2/ 2	.00*	.91	1.71	2.01	.10	.05	4.78	1721
3	20	2/ 2	.00*	.73	.97	.97	.21	.03	2.91	1723

CRUISE- 57 STATION- 44

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
67	6	1	76 3 7	1200	122 21.44	47 35.43

TYPE: WATER — WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	1	1/ 2	.00*	.92	2.35	1.67	.35	.00*	5.29
2	48	1/ 2	.00*	.95	1.63	1.22	.21	.00*	4.01
3	59	1/ 2	.00*	2.97	5.62	3.75	.71	.22	13.28
1	1	2/ 2	.00*	5.68	21.71	14.92	1.62	.69	44.62
2	48	2/ 2	.00*	1.36	2.92	1.90	.42	.00*	6.59
3	58	2/ 2	.00*	3.06	5.18	3.12	.57	.00*	11.92

TYPE: SPM — WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	1	1/ 2	.00*	.39	.49	.81	.37	.34	2.41
2	48	1/ 2	.00*	.55	.53	.65	.25	.17	2.15
3	59	1/ 2	.00*	.61	1.78	2.34	.86	.69	6.28
1	1	2/ 2	.00*	.53	.55	.62	.32	.24	2.26
2	48	2/ 2	.00*	.53	1.12	1.40	.52	.27	3.84
3	58	2/ 2	.00*	1.88	2.98	2.28	.86	.26	8.25

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
67	10	1	76	3	7	1337	122 21.44	47 35.40

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	1	1/ 2	.00*	2.13	3.21	2.93	.67	.31	9.25
2	48	1/ 2	.00*	.54	1.00	.78	.15	.00*	2.47
3	58	1/ 2	.00*	2.93	5.96	5.29	1.20	.14	15.53
1	1	2/ 2	.00*	.84	.91	.75	.21	.00*	2.71
2	48	2/ 2	.00*	.43	.56	.55	.13	.14	1.81
3	58	2/ 2	.00*	4.85	12.58	11.16	2.23	.00*	30.82
TYPE: SPM				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	1	1/ 2	.00*	.27	.63	.92	.50	.22	2.55
2	48	1/ 2	.00*	.32	.42	.46	.15	.11	1.46
3	58	1/ 2	.00*	.62	1.39	2.09	.84	.48	5.43
1	1	2/ 2	.00*	.51	.54	.56	.19	.18	1.99
2	48	2/ 2	.00*	.27	.52	.41	.17	.10	1.47
3	58	2/ 2	.00*	2.31	12.80	17.70	6.28	1.82	40.92

CRUISE- 67 STATION- 10

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
67	17	1	76 3 7	1055	122 22.39	47 35.33

TYPE: WATER WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	1	1/ 2	.00*	.76	1.20	.92	.20	.00*	3.07
2	50	1/ 2	.00*	4.41	20.81	15.65	1.87	.55	43.29
3	57	1/ 2	.00*	3.17	5.47	2.98	.72	.00*	12.33
1	1	2/ 2	.00*	.89	2.83	1.63	.22	.03	5.60
2	47	2/ 2	.00*	.75	1.63	1.23	.29	.02	3.92
3	63	2/ 2	.00*	1.64	2.34	1.09	.09	.00*	5.15

.

CRUISE- 67 STATION- 17

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
67	19	1	76 3 7	921	122 20.38	47 36.00

TYPE: WATER

WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	1	1/ 2	.00*	2.28	2.91	2.07	.32	.00*	7.58
2	47	1/ 2	.00*	1.94	3.53	2.60	.46	.28	8.81
3	56	1/ 2	.00*	4.81	7.83	4.77	.88	.00*	18.29
1	1	2/ 2	.00*	2.24	2.88	2.77	.49	.05	8.43
2	50	2/ 2	.00*	3.08	5.61	3.93	.64	.36	13.62
3	56	2/ 2	.00*	3.84	7.49	4.58	.74	.15	16.80

CRUISE- 67 STATION- 19

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
67	44	1	76	3	7	1039	122 21.34	47 35.24

TYPE: WATER WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	1	1/ 2	.00*	2.79	2.77	2.18	.64	.00*	8.39
2	15	1/ 2	.00*	1.34	1.90	2.21	.49	.00*	5.94
3	27	1/ 2	.00*	.56	1.17	1.30	.41	.37	3.81

CRUISE- 67 STATION- 44

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	1	66	76 3 16	916	122 21.44	47 35.46

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	66	1/ 2	.01*	5.11	42.92	129.24	68.46	46.76	292.49
1	66	1/ 2	15.95	176.93	373.12	390.19	116.95	67.13	1140.30
2	59	2/ 2	.01*	5.34	25.18	65.77	36.97	29.35	162.62
1	59	2/ 2	41.14	228.13	455.95	481.83	128.61	59.14	1394.80

TYPE: INTERSTITIAL WATERS WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	66	1/ 2	.07	1.99	5.76	8.57	1.61	.03	18.04
1	66	1/ 2	.02	55.89	83.73	45.81	11.60	7.20	204.25
2	59	2/ 2	.05	40.67	25.21	28.44	14.60	.02	109.00

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

2	66	1/ 2	H2O =30.2	POROSITY = .1401
			SOLIDS=69.8	VOID RATIO= .1629
1	66	1/ 2	H2O =46.6	POROSITY = .2481
			SOLIDS=53.4	VOID RATIO= .3299
2	59	2/ 2	H2O =31.7	POROSITY = .1489
			SOLIDS=68.3	VOID RATIO= .1750
1	59	2/ 2	H2O =50.9	POROSITY = .2815
			SOLIDS=49.1	VOID RATIO= .3917

CRUISE- 76 STATION- 1

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	1	59	76 3 16	935	122 21.49	47 35.46

DC DEPTH REPL   2CB   3CB   4CB   5CB   6CB   7CB   TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

```
2  66   1/ 2 O-G  =   .85
1  66   1/ 2 O-G  =  1.00
2  59   2/ 2 O-G  =   .63
1  59   2/ 2 O-G  =   .78
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	2	59	76 3 16	956	122 21.44	47 35.46

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

.

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	59	1/ 2	.00*	1.56	10.81	30.56	14.09	10.68	67.71
1	59	1/ 2	39.50	145.59	217.43	206.65	59.75	35.23	704.15
2	64	2/ 2	3.37	23.88	97.59	80.65	21.22	15.36	242.08
1	64	2/ 2	21.69	240.98	428.35	482.79	228.25	56.73	1458.80

TYPE: INTERSTITIAL WATERS WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	59	1/ 2	.03	147.32	1723.60	1838.20	223.01	49.37	3981.60
2	64	2/ 2	.11	10.89	35.08	29.04	13.49	.04	88.65
1	64	2/ 2	.04	28.54	24.37	16.31	6.15	1.66	77.07

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	59	1/ 2	H2O =31.7	POROSITY = .1490
			SOLIDS=68.3	VOID RATIO= .1750
1	59	1/ 2	H2O =44.0	POROSITY = .2285
			SOLIDS=56.0	VOID RATIO= .2962
2	64	2/ 2	H2O =31.9	POROSITY = .1500
			SOLIDS=68.1	VOID RATIO= .1765
1	64	2/ 2	H2O =45.3	POROSITY = .2383
			SOLIDS=54.7	VOID RATIO= .3129

CRUISE- 76 STATION- 2

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	2	64	76	3	16	1009	122 21.44	47 35.46

DC DEPTH PEPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	PEPL		VALUE
2	59	1/ 2 O-G	=	.47
1	59	1/ 2 O-G	=	.60
2	64	2/ 2 O-G	=	.91
1	64	2/ 2 O-G	=	.69

CRUISE- 76 STATION- 2

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	3	60	76 3 16	1017	122 21.40	47 35.46

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	60	1/ 2	.00*	3.23	14.13	29.96	14.64	12.76	74.72
1	60	1/ 2	24.98	271.18	533.88	596.87	167.77	69.61	1664.30
2	61	2/ 2	.00*	5.44	31.49	59.66	24.69	19.12	140.40
1	61	2/ 2	25.97	213.20	416.00	462.25	128.20	63.60	1309.20

TYPE: INTERSTITIAL WATERS WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	60	1/ 2	.06	4.70	39.72	42.05	18.79	.02	105.34
1	60	1/ 2	.05	12.03	10.53	9.26	1.90	.02	33.79
2	61	2/ 2	.07	3.62	32.27	40.86	11.94	.03	88.79

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL	VALUE	RATIO
2	60	1/ 2	H2O =28.2	POROSITY = .1291
			SOLIDS=71.8	VOID RATIO= .1482
1	60	1/ 2	H2O =45.4	POROSITY = .2391
			SOLIDS=54.6	VOID RATIO= .3142
2	61	2/ 2	H2O =31.3	POROSITY = .1468
			SOLIDS=68.7	VOID RATIO= .1721
1	61	2/ 2	H2O =50.7	POROSITY = .2795
			SOLIDS=49.3	VOID RATIO= .3879

CRUISE- 76 STATION- 3

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	3	61	76 3 16	1026	122 21.40	47 35.46

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
2  60   1/ 2 O-G  =  .48
1  60   1/ 2 O-G  =  .78
2  61   2/ 2 O-G  =  .79
1  61   2/ 2 O-G  =  .66
```

CRUISE- 76 STATION- 3

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	4	66	76 3 16	1037	122 21.35	47 35.46

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
2	66	1/ 2	2.18	8.36	31.00	85.00	50.31	39.47	216.31
1	66	1/ 2	12.28	127.36	245.50	294.36	112.78	73.40	865.68
2	65	2/ 2	.01*	4.61	30.73	96.86	57.78	33.90	223.89
1	65	2/ 2	23.08	131.62	250.19	248.59	93.75	74.08	821.31
TYPE: INTERSTITIAL WATERS				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
2	66	1/ 2	.03	1.38	5.38	11.77	3.80	.01	22.38
1	66	1/ 2	6.45	24.24	22.72	10.33	.02	.02	63.77
2	65	2/ 2	.02	.67	1.79	3.83	2.19	.01*	8.50
1	65	2/ 2	.02	29.08	53.25	33.25	7.73	.41	123.73

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL	PCT	RATIO
2	66	1/ 2	H2O =36.0	POROSITY = .1749
			SOLIDS=64.0	VOID RATIO= .2119
1	66	1/ 2	H2O =49.2	POROSITY = .2677
			SOLIDS=50.8	VOID RATIO= .3656
2	65	2/ 2	H2O =38.6	POROSITY = .1915
			SOLIDS=61.4	VOID RATIO= .2369
1	65	2/ 2	H2O =49.4	POROSITY = .2691
			SOLIDS=50.6	VOID RATIO= .3681

CRUISE- 76 STATION- 4

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	4	65	76	3	16	1046	122 21.35	47 35.46

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2	66	1/ 2	O-G	=	.88
1	66	1/ 2	O-G	=	.80
2	65	2/ 2	O-G	=	.92
1	65	2/ 2	O-G	=	.65

CRUISE- 76 STATION- 4

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	5	58	76 3 16	1058	122 21.49	47 35.43

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	58	1/ 2	15.58	123.98	196.56	202.19	66.41	33.15	637.87
1	58	1/ 2	19.07	369.85	584.58	498.65	146.54	43.10	1661.80
2	59	2/ 2	.01	19.39	97.49	202.12	62.75	68.03	449.79
1	59	2/ 2	16.94	159.99	293.75	256.57	57.49	25.73	810.47

TYPE: INTERSTITIAL WATERS WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	58	1/ 2	.06	4.94	52.24	48.13	13.51	2.77	121.66
1	58	1/ 2	.03	28.14	37.30	40.51	12.79	3.03	121.80
2	59	2/ 2	.03	4.79	2.48	8.41	3.12	.01	18.85

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL	PCT	RATIO
2	58	1/ 2	H2O =38.5	POROSITY = .1909
			SOLIDS=61.5	VOID RATIO= .2359
1	58	1/ 2	H2O =49.7	POROSITY = .2720
			SOLIDS=50.3	VOID RATIO= .3736
2	59	2/ 2	H2O =35.9	POROSITY = .1744
			SOLIDS=64.1	VOID RATIO= .2113
1	59	2/ 2	H2O =33.7	POROSITY = .1608
			SOLIDS=66.3	VOID RATIO= .1916

CRUISE- 76 STATION- 5

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	5	59	76 3 16	1105	122 21.49	47 35.43

DC DEPTH REPL   2CB   3CB   4CB   5CB   6CB   7CB   TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

2	58	1/ 2 O-G	=	.67
1	58	1/ 2 O-G	=	.88
2	59	2/ 2 O-G	=	4.38
1	59	2/ 2 O-G	=	.72

CRUISE- 76 STATION- 5

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	6	1	76	3	16	1200	122 21.44	47 35.43

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	1	1/ 2	.00*	.24	.43	.35	.06	.00*	1.08
2	50	1/ 2	.00*	.11	.14	.11	.00*	.00*	.36
3	59	1/ 2	.00*	.71	.96	.73	.10	.00*	2.50
1	1	2/ 2	.00*	.78	.80	.74	.15	.00*	2.47
2	50	2/ 2	.00*	.25	.64	.59	.05	.00*	1.53
3	59	2/ 2	.00*	.91	.52	.26	.11	.00*	1.79
TYPE: SPM				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	1	1/ 2	.00*	.53	.76	.76	.22	.24	2.51
2	50	1/ 2	.00*	1.00	1.02	.84	.17	.23	3.26
3	59	1/ 2	.00*	.17	.29	.22	.10	.09	.87
1	1	2/ 2	.00*	1.26	.72	.69	.14	.10	2.91
2	50	2/ 2	.00*	.83	.80	.46	.17	.05	2.33
3	59	2/ 2	.00*	.99	.66	.54	.11	.08	2.38
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
2	59	1/ 2	1.81	9.99	58.55	126.93	50.48	31.71	279.46
1	59	1/ 2	8.89	52.55	79.73	51.39	9.71	3.71	205.98
2	59	2/ 2	26.02	172.12	276.67	307.18	97.23	38.50	917.73

CRUISE- 76 STATION- 6

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	6	59	76 3 16	1120	122 21.44	47 35.43

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	59	2/ 2	9.38	385.15	802.25	760.71	208.22	61.36	2227.10

TYPE: INTERSTITIAL WATERS WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	59	1/ 2	.05	1.91	16.59	19.01	8.03	1.68	47.27
1	59	1/ 2	.06	12.07	65.51	38.12	13.53	.02	129.32
2	59	2/ 2	.04	10.22	15.80	21.55	5.70	.02	53.33
1	59	2/ 2	7.32	45.14	123.08	96.29	16.77	7.22	295.82

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL	PERCENT	RATIO
2	59	1/ 2	H2O =38.2	POROSITY = .1889
			SOLIDS=61.8	VOID RATIO= .2329
1	59	1/ 2	H2O =59.5	POROSITY = .3568
			SOLIDS=40.5	VOID RATIO= .5548
2	59	2/ 2	H2O =36.6	POROSITY = .1791
			SOLIDS=63.4	VOID RATIO= .2181
1	59	2/ 2	H2O =43.0	POROSITY = .2217
			SOLIDS=57.0	VOID RATIO= .2848

CRUISE- 76 STATION- 6

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	6	59	76 3 16	1113	122 21.44	47 35.43

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CP 7CB TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GP PEP GM DRY MASS

2	59	1/ 2 O-G	=	1.15
1	59	1/ 2 O-G	=	1.55
2	59	2/ 2 O-G	=	.82
1	59	2/ 2 O-G	=	.98

CPUISE- 76 STATION- 6

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	7	61	76 3 16	1134	122 21.40	47 35.43

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

SS	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCP
2	61	1/ 2	59.38	413.47	975.51	1121.60	379.03	108.05	3057.10
1	61	1/ 2	65.47	340.61	717.27	741.25	204.92	99.28	2168.80
2	62	2/ 2	51.36	349.34	842.63	834.05	290.65	76.21	2444.20
1	62	2/ 2	27.88	235.70	466.61	409.87	93.41	45.14	1278.60

TYPE: INTERSTITIAL WATERS WITH UNITS:PICOGRAMS NCB PER GM ML WATER

SS	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCP
2	61	1/ 2	.03	21.39	46.68	48.66	13.12	4.65	134.54
1	61	1/ 2	.03	52.29	77.22	41.22	10.07	4.47	185.30
2	62	2/ 2	.03	33.01	47.99	43.37	14.78	.01	139.20
1	62	2/ 2	16.30	64.53	99.46	69.79	13.52	5.74	269.34

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

SS	DEPTH	REPL	H2O, SOLIDS	POROSITY, VOID RATIO
2	61	1/ 2	H2O =42.5	POROSITY = .2179
			SOLIDS=57.5	VOID RATIO= .2786
1	61	1/ 2	H2O =54.5	POROSITY = .3110
			SOLIDS=45.5	VOID RATIO= .4513
2	62	2/ 2	H2O =42.4	POROSITY = .2175
			SOLIDS=57.6	VOID RATIO= .2779
1	62	2/ 2	H2O =48.2	POROSITY = .2596
			SOLIDS=51.8	VOID RATIO= .3506

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	7	62	76 3 16	1142	122 21.40	47 35.43

DC DEPTH REPL   2CB   3CB   4CB   5CB   6CB   7CB   TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

```
2  61    1/ 2 O-G   = 1.58
1  61    1/ 2 O-G   = 1.71
2  62    2/ 2 O-G   = 1.43
1  62    2/ 2 O-G   =  .89
```

CRUISE- 76 STATION- 7

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	8	63	76 3 16	1156	122 21.35	47 35.43

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
2	63	1/ 2	5.84	18.82	59.58	124.21	70.75	52.60	331.80
1	63	1/ 2	11.20	64.98	115.93	96.04	17.99	9.51	315.64
2	64	2/ 2	3.60	15.48	79.38	141.54	71.59	60.66	372.25
1	64	2/ 2	34.06	232.64	332.51	240.17	55.23	23.96	918.56
TYPE: INTERSTITIAL WATERS				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	63	1/ 2	.04	12.03	27.71	31.87	12.92	3.26	87.83
2	64	2/ 2	.03	23.80	44.68	43.09	23.35	.01	134.97
1	64	2/ 2	.06	11.47	30.09	36.11	13.02	.02	90.77

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

2	63	1/ 2	H2O =32.2	POROSITY = .1517
			SOLIDS=67.8	VOID RATIO= .1788
1	63	1/ 2	H2O =47.6	POROSITY = .2555
			SOLIDS=52.4	VOID RATIO= .3432
2	64	2/ 2	H2O =35.1	POROSITY = .1696
			SOLIDS=64.9	VOID RATIO= .2042
1	64	2/ 2	H2O =49.1	POROSITY = .2667
			SOLIDS=50.9	VOID RATIO= .3638

CRUISE- 76 STATION- 8

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	8	64	76 3 16	1206	122 21.35	47 35.43

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2	63	1/ 2 O-G	=	.38
1	63	1/ 2 O-G	=	.75
2	64	2/ 2 O-G	=	1.12
1	64	2/ 2 O-G	=	.74

CRUISE- 76 STATION- 8

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	9	58	76 3 16	1248	122 21.49	47 35.40

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	58	1/ 2	.02	8.14	68.81	334.39	292.45	252.67	956.48
1	58	1/ 2	23.48	246.46	398.43	386.11	124.10	32.60	1211.20
2	58	2/ 2	49.99	165.88	201.57	235.25	101.97	62.08	816.74
1	58	2/ 2	52.76	334.51	720.72	899.78	276.85	101.33	2386.00

TYPE: INTERSTITIAL WATERS WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	58	1/ 2	.04	22.57	20.46	35.16	17.48	.02	95.73
1	58	1/ 2	.04	.05	7.01	13.06	8.31	.01	28.49
2	58	2/ 2	.10	6.20	25.64	29.59	11.17	.04	72.75
1	58	2/ 2	.02	40.94	58.10	42.12	8.84	5.34	155.36

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL	H2O, SOLIDS		POROSITY, VOID RATIO
2	58	1/ 2	H2O =31.5		POROSITY = .1476
			SOLIDS=68.5		VOID RATIO= .1732
1	58	1/ 2	H2O =49.9		POROSITY = .2730
			SOLIDS=50.1		VOID RATIO= .3756
2	58	2/ 2	H2O =37.1		POROSITY = .1822
			SOLIDS=62.9		VOID RATIO= .2229
1	58	2/ 2	H2O =50.8		POROSITY = .2807
			SOLIDS=49.2		VOID RATIO= .3902

CRUISE- 76 STATION- 9

```
------------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
  76       9          58        76  3  16       1257      122 21.49    47 35.40
------------------------------------------------------------------------------------------------

DC DEPTH REPL      2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:OIL AND GREASE          WITH UNITS: MG OIL-GR PER GM DRY MASS

2  58      1/ 2 O-G   =  .57
1  58      1/ 2 O-G   =  .88
2  58      2/ 2 O-G   =  .65
1  58      2/ 2 O-G   =  .76
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	10	1	76 3 16	1326	122 21.44	47 35.40

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER			WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1	1	1/ 2	.00*	.36	3.41	2.39	.24	.00*	6.40
2	50	1/ 2	.00*	.32	.51	.51	.13	.00*	1.46
3	59	1/ 2	.00*	.08	.78	.94	.20	.00*	2.00
1	1	2/ 2	.00*	1.28	1.79	1.10	.07	.00*	4.24
3	59	2/ 2	.00*	.98	.77	.53	.13	.00*	2.43
TYPE: SPM			WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1	1	1/ 2	.00*	.63	.76	1.03	.21	.22	2.96
2	50	1/ 2	.00*	.48	.66	.74	.15	.20	2.24
3	59	1/ 2	.00*	.81	.80	.78	.20	.09	2.69
1	1	2/ 2	.00*	.32	.61	.72	.24	.15	2.04
2	50	2/ 2	.00*	.43	.93	.62	.14	.08	2.21
3	59	2/ 2	.00*	.45	.63	.60	.13	.11	1.92
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS						
2	58	1/ 2	40.40	270.77	475.15	355.89	77.70	36.11	1256.00
1	58	1/ 2	77.61	460.84	989.31	1121.00	342.04	102.06	3092.80
2	58	2/ 2	59.47	365.79	749.63	727.92	203.13	68.18	2174.10
1	58	2/ 2	27.56	319.00	686.58	653.91	167.11	64.05	1918.20

CRUISE- 76 STATION- 10

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	10	58	76 3 16	1311	122 21.44	47 35.40

TYPE: INTERSTITIAL WATERS WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	58	1/ 2	.05	18.40	18.41	21.35	5.70	.02	63.93
1	58	1/ 2	.02	1964.70	2271.00	388.95	25.16	6.28	4656.10
2	58	2/ 2	.04	13.78	12.22	11.49	2.51	.02	40.06
1	58	2/ 2	.04	68.30	83.70	47.55	12.05	4.84	216.47

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

2	58	1/ 2	H2O =41.2	POROSITY = .2094
			SOLIDS=58.8	VOID RATIO= .2649
1	58	1/ 2	H2O =52.0	POROSITY = .2903
			SOLIDS=48.0	VOID RATIO= .4090
2	58	2/ 2	H2O =43.5	POROSITY = .2251
			SOLIDS=56.5	VOID RATIO= .2905
1	58	2/ 2	H2O =45.4	POROSITY = .2386
			SOLIDS=54.6	VOID RATIO= .3134

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2	58	1/ 2	O-G = 1.14
1	58	1/ 2	O-G = .97
2	58	2/ 2	O-G = 1.12

CRUISE- 76 STATION- 10

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	10	58	76	3	16	1311	122 21.44	47 35.40

DC DEPTH REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1 58 2/ 2 O-G = .98

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	11	64	76 3 16	1319	122 21.40	47 35.40

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
2	64	1/ 2	102.14	525.45	906.33	752.39	256.30	53.14	2595.80
1	64	1/ 2	111.65	529.72	1142.50	1564.10	499.84	251.48	4099.30
2	64	2/ 2	59.42	235.62	371.93	440.61	164.52	70.06	1342.20
1	64	2/ 2	58.56	345.33	800.20	961.64	282.73	120.35	2568.80
TYPE: INTERSTITIAL WATERS				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
2	64	1/ 2	.04	75.99	105.68	62.37	16.06	8.92	269.04
1	64	1/ 2	.04	49.77	53.38	37.15	7.21	2.28	149.84
2	64	2/ 2	.04	24.05	83.09	65.39	17.34	11.50	201.42
1	64	2/ 2	.04	22.59	52.78	57.32	11.25	.02	143.99

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	64	1/ 2	H2O =43.0	POROSITY = .2219
			SOLIDS=57.0	VOID RATIO= .2852
1	64	1/ 2	H2O =52.8	POROSITY = .2968
			SOLIDS=47.2	VOID RATIO= .4221
2	64	2/ 2	H2O =39.9	POROSITY = .2002
			SOLIDS=60.1	VOID RATIO= .2502
1	64	2/ 2	H2O =47.2	POROSITY = .2525
			SOLIDS=52.8	VOID RATIO= .3378

CRUISE- 76 STATION- 11

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	11	64	76 3 16	1342	122 21.40	47 35.40

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
2  64     1/ 2 O-G   = 1.19
1  64     1/ 2 O-G   = 1.69
2  64     2/ 2 O-G   =  .77
1  64     2/ 2 O-G   = 1.32
```

CRUISE- 76 STATION- 11

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	12	64	76 3 16	1350	122 21.35	47 35.40

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
2	64	1/ 2	.01*	7.68	43.54	104.75	49.22	31.27	236.48
1	64	1/ 2	73.45	346.40	576.83	485.11	110.57	45.51	1637.90
2	64	2/ 2	.01*	13.08	76.80	151.09	54.57	31.20	326.76
1	64	2/ 2	67.97	331.99	627.64	651.88	203.25	57.48	1940.20
TYPE: INTERSTITIAL WATERS				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
2	64	1/ 2	.09	19.69	68.28	75.09	63.87	17.62	244.66
1	64	1/ 2	23.16	51.94	82.50	37.21	10.93	3.35	209.09
2	64	2/ 2	.07	16.49	76.21	55.35	26.36	.03	174.50
1	64	2/ 2	21.20	75.71	80.71	47.90	9.19	.02	234.72

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

2	64	1/ 2	H2O =25.9	POROSITY = .1163
			SOLIDS=74.1	VOID RATIO= .1316
1	64	1/ 2	H2O =56.3	POROSITY = .3274
			SOLIDS=43.7	VOID RATIO= .4868
2	64	2/ 2	H2O =33.1	POROSITY = .1574
			SOLIDS=66.9	VOID RATIO= .1867
1	64	2/ 2	H2O =53.5	POROSITY = .3030
			SOLIDS=46.5	VOID RATIO= .4348

CRUISE- 76 STATION- 12

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	12	64	76	3	16	1357	122 21.35	47 35.40

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2	64	1/ 2	O-G	= .46
1	64	1/ 2	O-G	= 1.17
2	64	2/ 2	O-G	= .50
1	64	2/ 2	O-G	= .91

CRUISE- 76 STATION- 12

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	13	56	76 3 16	1404	122 21.49	47 35.37

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1	56	1/ 2	8.80	57.62	152.35	232.76	75.98	39.05	566.57
1	56	2/ 2	12.59	115.75	219.61	256.04	89.12	46.04	739.14
2	56	2/ 2	6.29	51.91	117.13	201.46	148.28	132.91	657.99
TYPE: INTERSTITIAL WATERS				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	56	1/ 2	.03	33.41	60.16	74.57	20.38	10.90	199.45
2	56	2/ 2	.19	179.68	284.86	163.58	48.57	50.77	727.65

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	56	1/ 2	H2O =41.9	POROSITY =	.2141
			SOLIDS=58.1	VOID RATIO=	.2725
1	56	2/ 2	H2O =33.7	POROSITY =	.1612
			SOLIDS=66.3	VOID RATIO=	.1922
2	56	2/ 2	H2O =22.2	POROSITY =	.0972
			SOLIDS=77.8	VOID RATIO=	.1076

AD-A061 987 WASHINGTON UNIV SEATTLE DEPT OF OCEANOGRAPHY F/G 13/3
AQUATIC DISPOSAL FIELD INVESTIGATIONS DUWAMISH WATERWAY DISPOSA--ETC(U)
JAN 78 S P PAVLOU, R N DEXTER, W HOM DACW39-76-C-0167
UNCLASSIFIED WES-TR-D-77-24-APP-E NL

3 OF 6
AD
A061987

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	13	56	76 3 16	1404	122 21.49	47 35.37

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCP

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	56	1/ 2 O-G	=	.55
1	56	2/ 2 O-G	=	.69
2	56	2/ 2 O-G	=	.56

CRUISE- 76 STATION- 13

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	14	58	76 3 16	1429	122 21.44	47 35.37

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS						
2	58	1/ 2	11.24	92.02	135.86	208.55	95.43	66.55	609.65
1	58	1/ 2	20.92	258.34	461.82	466.91	137.89	38.71	1384.60
1	56	2/ 2	25.90	219.27	428.61	388.20	99.30	44.40	1205.70
2	58	2/ 2	2.57	16.66	55.96	139.26	86.49	70.34	371.29
TYPE: INTERSTITIAL WATERS			WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1	58	1/ 2	.03	61.17	46.66	24.11	3.67	1.11	136.75
1	58	2/ 2	.02	111.65	108.48	58.02	7.25	5.16	290.58

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	58	1/ 2	H2O =36.2	POROSITY = .1766
			SOLIDS=63.8	VOID RATIO= .2145
1	58	1/ 2	H2O =26.7	POROSITY = .1206
			SOLIDS=73.3	VOID RATIO= .1372
1	58	2/ 2	H2O =34.5	POROSITY = .1655
			SOLIDS=65.5	VOID RATIO= .1984
2	58	2/ 2	H2O =29.7	POROSITY = .1373
			SOLIDS=70.3	VOID RATIO= .1592

CRUISE- 76 STATION- 14

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	15	59	76 3 16	1445	122 21.40	47 35.37

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
2	59	1/ 2	.00*	2.00	12.73	30.48	11.47	6.84	63.52
1	59	1/ 2	6.78	54.27	128.04	160.45	54.01	32.64	436.19
2	59	2/ 2	.01*	3.51	30.62	82.86	31.04	18.60	166.64
1	59	2/ 2	9.06	114.15	219.42	373.27	200.81	143.49	1060.20
TYPE: INTERSTITIAL WATERS				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
2	59	2/ 2	.07	33.87	8.39	18.86	.03	.04	61.26
1	59	2/ 2	.07	107.80	67.07	49.88	15.71	4.66	265.20

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

2	59	1/ 2	H2O =24.7	POROSITY = .1102
			SOLIDS=75.3	VOID RATIO= .1238
1	59	1/ 2	H2O =33.7	POROSITY = .1608
			SOLIDS=66.3	VOID RATIO= .1916
2	59	2/ 2	H2O =21.3	POROSITY = .0929
			SOLIDS=78.7	VOID RATIO= .1024
1	59	2/ 2	H2O =39.7	POROSITY = .1991
			SOLIDS=60.3	VOID RATIO= .2485

CRUISE- 76 STATION- 15

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	14	59	76 3 16	1429	122 21.44	47 35.37

DC DEPTH REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2	58	1/ 2	O-G	=	.65
1	58	1/ 2	O-G	=	.66
1	58	2/ 2	O-G	=	1.05
2	58	2/ 2	O-G	=	.44

CRUISE- 76 STATION- 14

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	15	59	76 3 16	1445	122 21.40	47 35.37

DC DEPTH REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2	59	1/ 2 O-G	=	.39
1	59	1/ 2 O-G	=	.38
2	59	2/ 2 O-G	=	.53
1	59	2/ 2 O-G	=	.67

CRUISE- 76 STATION- 15

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	16	62	76 3 16	1514	122 21.35	47 35.37

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	62	1/ 2	17.00	113.26	281.40	336.16	106.00	59.96	913.77
2	62	1/ 2	1.72	10.76	195.68	425.75	118.51	36.23	788.65
1	62	2/ 2	16.23	137.32	272.50	300.20	87.80	43.40	857.44
2	62	2/ 2	.53	2.36	57.26	135.08	34.50	12.96	242.69

TYPE: INTERSTITIAL WATERS WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	62	1/ 2	.04	31.14	15.94	22.94	4.68	.02	74.75
1	62	2/ 2	.03	27.36	34.45	16.94	4.36	.01*	83.15
2	62	2/ 2	.19	14.80	75.95	133.78	66.23	13.94	304.88

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL	PCT	RATIO
1	62	1/ 2	H2O =49.8	POROSITY = .2725
			SOLIDS=50.2	VOID RATIO= .3745
2	62	1/ 2	H2O =19.6	POROSITY = .0841
			SOLIDS=80.4	VOID RATIO= .0918
1	62	2/ 2	H2O =50.9	POROSITY = .2813
			SOLIDS=49.1	VOID RATIO= .3915
2	62	2/ 2	H2O =22.7	POROSITY = .1000
			SOLIDS=77.3	VOID RATIO= .1111

CRUISE- 76 STATION- 16

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	16	62	76 3 16	1519	122 21.35	47 35.37

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	62	1/ 2 O-G	=	.79
2	62	1/ 2 O-G	=	.38
1	62	2/ 2 O-G	=	.75
2	62	2/ 2 O-G	=	.15

CRUISE- 76 STATION- 16

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	17	1	76 3 16	1015	122 22.39	47 35.33

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER			WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1	1	1/ 2	.00*	.38	.56	.41	.03	.00*	1.38
1	1	2/ 2	.00*	.28	.76	.61	.14	.00*	1.79
2	50	1/ 2	.00*	.13	.40	.32	.02	.00*	.87
3	59	1/ 2	.00*	.21	.19	.12	.00*	.00*	.52
2	50	2/ 2	.00*	.33	.64	.68	.07	.00*	1.72
3	59	2/ 2	.00*	.77	3.21	2.33	.07	.00*	6.38
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS						
2	59	1/ 2	.00*	.61	3.08	6.65	2.37	1.26	13.98
1	59	1/ 2	.00*	1.13	7.20	21.82	10.90	8.37	49.43
2	61	2/ 2	.00*	.80	3.15	6.89	2.31	1.93	15.08
1	61	2/ 2	.00*	1.79	15.84	47.70	22.54	15.20	103.08
TYPE: INTERSTITIAL WATERS			WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1	59	1/ 2	.03	14.75	27.33	36.87	13.97	2.96	96.91

CRUISE- 76 STATION- 17

```
------------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   76      17           59       76   3  16      1621      122 22.39    47 35.33
------------------------------------------------------------------------------------------------

DC DEPTH REPL      2CB        3CB        4CB        5CB        6CB        7CB        TCB

TYPE:PCT H2O,SOLIDS....      WITH UNITS:PERCENT; UNITLESS RATIO

2  59      1/ 2 H2O    =24.3                       POROSITY   = .1079
                SOLIDS=75.7                        VOID RATIO= .1209
1  59      1/ 2 H2O    =37.6                       POROSITY   = .1852
                SOLIDS=62.4                        VOID RATIO= .2273
2  61      2/ 2 H2O    =27.7                       POROSITY   = .1262
                SOLIDS=72.3                        VOID RATIO= .1444
1  61      2/ 2 H2O    =39.8                       POROSITY   = .2000
                SOLIDS=60.2                        VOID RATIO= .2500

TYPE:OIL AND GREASE          WITH UNITS: MG OIL-GR PER GM DRY MASS

2  59      1/ 2 O-G    =   .14
1  59      1/ 2 O-G    =   .28
2  61      2/ 2 O-G    =   .14
1  61      2/ 2 O-G    =   .30
```

CRUISE- 76 STATION- 17

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	18	57	76 3 16	1633	122 22.34	47 35.30

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
2	57	1/ 2	.00*	.52	2.44	11.95	5.82	4.09	24.82
1	57	1/ 2	.00*	2.17	19.52	52.99	25.14	15.49	115.32
2	62	2/ 2	.00*	.29	1.07	2.55	1.00	.44	5.34
1	62	2/ 2	.00*	1.33	12.19	35.36	17.42	12.30	78.60
TYPE: INTERSTITIAL WATERS				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	57	1/ 2	.02	17.24	23.87	32.49	23.61	6.87	104.09
1	62	2/ 2	.01	11.20	16.11	37.03	15.44	9.20	89.00

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

2	57	1/ 2	H2O =28.4	POROSITY = .1301
			SOLIDS=71.6	VOID RATIO= .1496
1	57	1/ 2	H2O =43.9	POROSITY = .2280
			SOLIDS=56.1	VOID RATIO= .2953
2	62	2/ 2	H2O =27.0	POROSITY = .1226
			SOLIDS=73.0	VOID RATIO= .1398
1	62	2/ 2	H2O =43.9	POROSITY = .2279
			SOLIDS=56.1	VOID RATIO= .2952

CRUISE- 76 STATION- 18

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	18	57	76 3 16	1633	122 22.34	47 35.30

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
2  57     1/ 2 O-G   =   .28
1  57     1/ 2 O-G   =   .38
2  62     2/ 2 O-G   =   .12
1  62     2/ 2 O-G   =   .34
```

CRUISE- 76 STATION- 18

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	19	1	76 3 16	746	122 20.38	47 36.00

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	1	1/ 2	.00*	.40	1.12	.99	.37	.00*	2.89
2	50	1/ 2	.00*	.45	.63	.63	.18	.00*	1.87
3	59	1/ 2	.00*	1.18	1.58	1.41	.33	.10	4.60
1	1	2/ 2	.00*	1.75	1.90	1.10	.18	.00*	4.93
2	50	2/ 2	.00*	.20	.33	.27	.01	.00*	.82
3	59	2/ 2	.00*	.67	2.04	1.68	.38	.00*	4.77
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1	51	1/ 2	.01*	7.17	51.05	163.58	80.91	59.23	361.95
2	51	1/ 2	.00*	1.33	3.48	12.18	6.74	4.62	28.36
2	53	2/ 2	.00*	1.27	5.20	20.15	11.91	10.73	49.27
1	53	2/ 2	.00*	6.32	50.20	160.92	83.07	59.01	359.53
TYPE: INTERSTITIAL WATERS				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	51	1/ 2	.04	2.48	21.17	74.64	41.14	31.41	170.88
1	53	2/ 2	.02	6.03	8.81	15.55	2.50	.24	33.15

CRUISE- 76 STATION- 19

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	19	51	76 3 16	1536	122 20.38	47 36.00

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	51	1/ 2	H2O =45.9	POROSITY = .2424
			SOLIDS=54.1	VOID RATIO= .3200
2	51	1/ 2	H2O =39.4	POROSITY = .1970
			SOLIDS=60.6	VOID RATIO= .2453
2	53	2/ 2	H2O =39.5	POROSITY = .1979
			SOLIDS=60.5	VOID RATIO= .2467
1	53	2/ 2	H2O =57.0	POROSITY = .3337
			SOLIDS=43.0	VOID RATIO= .5009

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	51	1/ 2	O-G = 1.50
2	51	1/ 2	O-G = .60
2	53	2/ 2	O-G = 1.24
1	53	2/ 2	O-G = 1.52

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	20	54	76 3 16	1550	122 20.38	47 35.58

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1	54	1/ 2	.00*	.80	6.09	21.50	10.15	7.85	46.40
2	54	1/ 2	.00*	.66	1.48	2.96	.64	.37	6.10
1	48	2/ 2	.01*	6.42	35.57	89.55	44.73	28.23	204.51
2	48	2/ 2	.00*	1.62	3.90	10.25	3.77	3.08	22.62
TYPE: INTERSTITIAL WATERS				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	54	1/ 2	.02	3.90	21.62	32.83	8.59	6.07	73.03
1	48	2/ 2	.02	3.67	1.11	5.07	3.14	.01*	13.03

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	54	1/ 2	H2O =46.5	POROSITY = .2468
			SOLIDS=53.5	VOID RATIO= .3277
2	54	1/ 2	H2O =27.1	POROSITY = .1229
			SOLIDS=72.9	VOID RATIO= .1401
1	48	2/ 2	H2O =51.1	POROSITY = .2825
			SOLIDS=48.9	VOID RATIO= .3937
2	48	2/ 2	H2O =28.9	POROSITY = .1328
			SOLIDS=71.1	VOID RATIO= .1531

CRUISE- 76 STATION- 20

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	20	54	76 3 16	1550	122 20.38	47 35.58

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL			VALUE
1	54	1/ 2	O-G	=	.81
2	54	1/ 2	O-G	=	.26
1	48	2/ 2	O-G	=	1.46
2	48	2/ 2	O-G	=	1.29

CRUISE- 76 STATION- 20

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
76	44	1	76 3 16	906	122 21.34	47 35.24

TYPE: WATER — WITH UNITS:PICOGRAMS NCB PER GM ML WATER

OC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	1	1/ 2	.00*	3.87	3.53	2.37	.22	.00*	9.98
2	24	1/ 2	.00*	.49	1.17	1.03	.19	.00*	2.87
3	33	1/ 2	.00*	1.00	1.70	1.48	.38	.00*	4.57
1	1	2/ 2	.00*	3.01	1.22	.93	.10	.00*	5.26
3	33	2/ 2	.00*	.86	1.09	1.13	.29	.00*	3.37
2	24	2/ 2	.00*	.40	1.19	1.17	.37	.00*	3.13

CRUISE- 76 STATION- 44

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	1	62	76 4 8	842	122 21.49	47 35.46

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	62	1/ 2	36.11	186.50	411.21	418.25	112.80	58.79	1223.70
2	62	1/ 2	.00*	3.57	24.88	78.75	41.19	29.52	177.91
1	61	2/ 2	24.17	233.73	484.53	525.19	165.36	56.62	1489.60
2	61	2/ 2	.00*	7.61	29.61	73.11	33.75	23.01	167.08

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
1	62	1/ 2	H2O =52.0	POROSITY = .2904
			SOLIDS=48.0	VOID RATIO= .4092
2	62	1/ 2	H2O =32.4	POROSITY = .1531
			SOLIDS=67.6	VOID RATIO= .1807
1	61	2/ 2	H2O =45.2	POROSITY = .2377
			SOLIDS=54.7	VOID RATIO= .3119
2	61	2/ 2	H2O =30.9	POROSITY = .1445
			SOLIDS=69.1	VOID RATIO= .1689

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
1	62	1/ 2	O-G = .85
2	62	1/ 2	O-G = .57
1	61	2/ 2	O-G = .77

CRUISE- 99 STATION- 1

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	1	61	76	4	8	857	122 21.49	47 35.46

DC DEPTH REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

2 61   2/ 2 O-G = .66

CRUISE- 99 STATION- 1

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	2	61	76 4 8	904	122 21.44	47 35.46

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	61	1/ 2	33.93	337.05	524.56	449.29	104.35	52.89	1502.10
2	61	1/ 2	.00*	6.27	27.55	68.41	32.23	30.03	164.49
1	61	2/ 2	22.79	282.29	426.91	416.63	107.48	39.45	1295.50
2	61	2/ 2	.00*	6.64	21.55	55.88	19.24	15.52	118.83

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
1	61	1/ 2	H2O =50.6	POROSITY = .2789
			SOLIDS=49.4	VOID RATIO= .3868
2	61	1/ 2	H2O =31.6	POROSITY = .1482
			SOLIDS=68.4	VOID RATIO= .1741
1	61	2/ 2	H2O =43.8	POROSITY = .2273
			SOLIDS=56.2	VOID RATIO= .2942
2	61	2/ 2	H2O =32.5	POROSITY = .1535
			SOLIDS=67.5	VOID RATIO= .1814

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
1	61	1/ 2	O-G = 1.40
2	61	1/ 2	O-G = .00
1	61	2/ 2	O-G = .00

CRUISE- 99 STATION- 2

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	2	61	76	4	8	909	122 21.44	47 35.46

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

2 61 2/ 2 O-G = .00

CRUISE- 99 STATION- 2

```
------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   99      3             67     76   4   8        919      122 21.40    47 35.46
------------------------------------------------------------------------------------------

DC DEPTH REPL       2CB        3CB        4CB        5CB        6CB        7CB        TCB

TYPE:PCB-SEDIMENT              WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

2  67      1/ 2      1.53       7.15      85.91     207.70      64.81      27.26     394.37
1  67      1/ 2     22.56     147.56     264.94     269.01      71.28      29.81     805.16
2  62      2/ 2       .00*      1.12       6.78      14.20       6.12      10.47      38.70
1  62      2/ 2     13.36      85.24     156.25     173.86      60.86      45.71     535.28

TYPE:PCT H2O,SOLIDS....        WITH UNITS:PERCENT; UNITLESS RATIO

2  67      1/ 2 H2O    =31.3                        POROSITY   = .1469
                SOLIDS=68.7                         VOID RATIO= .1722
1  67      1/ 2 H2O    =41.0                        POROSITY   = .2076
                SOLIDS=59.0                         VOID RATIO= .2620
2  62      2/ 2 H2O    =29.7                        POROSITY   = .1378
                SOLIDS=70.3                         VOID RATIO= .1598
1  62      2/ 2 H2O    =38.7                        POROSITY   = .1924
                SOLIDS=61.3                         VOID RATIO= .2382

TYPE:OIL AND GREASE            WITH UNITS: MG OIL-GR PER GM DRY MASS

2  67      1/ 2 O-G    =   .92
1  67      1/ 2 O-G    =   .86
2  62      2/ 2 O-G    =  1.25

                                                       CRUISE- 99  STATION-  3
```

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	3	62	76	4	8	920	122 21.40	47 35.46

DC DEPTH REPL   2CB   3CB   4CB   5CB   6CB   7CB   TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

1 62   2/ 2 O-G   = .00

CRUISE- 99 STATION- 3

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	4	68	76 4 8	932	122 21.35	47 35.46

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	68	1/ 2	.00*	4.24	22.18	58.00	34.40	28.61	147.42
1	68	1/ 2	10.13	75.59	135.56	149.55	60.58	44.08	475.49
1	67	2/ 2	33.20	179.69	326.75	333.25	102.06	61.19	1036.10
2	67	2/ 2	1.28	5.40	21.50	52.98	30.45	23.79	135.40

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	68	1/ 2	H2O =38.7	POROSITY = .1923
			SOLIDS=61.3	VOID RATIO= .2381
1	68	1/ 2	H2O =45.4	POROSITY = .2390
			SOLIDS=54.6	VOID RATIO= .3140
1	67	2/ 2	H2O =48.9	POROSITY = .2656
			SOLIDS=51.1	VOID RATIO= .3617
2	67	2/ 2	H2O =37.3	POROSITY = .1835
			SOLIDS=62.7	VOID RATIO= .2247

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
2	68	1/ 2	O-G = .97
1	68	1/ 2	O-G = .99
1	67	2/ 2	O-G = 1.24

CRUISE- 99 STATION- 4

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	4	67	76	4	8	936	122 21.35	47 35.46

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR GM DRY MASS

2 67 2/ 2 O-G = 1.46

CRUISE- 99 STATION- 4

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	5	60	76 4 8	944	122 21.49	47 35.43

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	60	1/ 2	58.16	198.82	324.88	300.88	77.01	33.45	993.20
2	60	1/ 2	.00*	4.62	31.79	105.10	74.96	65.39	281.87
2	60	2/ 2	.01*	5.30	33.33	136.78	114.78	95.23	385.43
1	60	2/ 2	54.04	186.44	308.07	302.62	96.64	60.51	1008.30

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
1	60	1/ 2	H2O =46.2	POROSITY = .2449
			SOLIDS=53.8	VOID RATIO= .3243
2	60	1/ 2	H2O =32.9	POROSITY = .1563
			SOLIDS=67.1	VOID RATIO= .1852
2	60	2/ 2	H2O =27.5	POROSITY = .1251
			SOLIDS=72.5	VOID RATIO= .1430
1	60	2/ 2	H2O =52.3	POROSITY = .2929
			SOLIDS=47.7	VOID RATIO= .4143

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
1	60	1/ 2	O-G = .91
2	60	1/ 2	O-G = .74
2	60	2/ 2	O-G = .48

CRUISE- 99 STATION- 5

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	5	60	76	4	8	955	122 21.49	47 35.43

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1 60 2/ 2 O-G = .85

CRUISE- 99 STATION- 5

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	6	1	76	4	8	16	122 21.44	47 35.43

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCP
TYPE: WATER			WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1	1	1/ 2	.00*	1.76	.67	.94	.19	.08	3.63
2	52	1/ 2	.00*	.31	.83	1.16	.32	.05	2.68
3	60	1/ 2	.00*	3.98	8.23	6.74	1.10	.41	20.46
1	1	2/ 2	.00*	1.54	1.23	.91	.22	.00*	3.90
2	50	2/ 2	.00*	.35	1.04	.86	.31	.00*	2.56
3	60	2/ 2	.00*	1.20	1.65	1.30	.25	.00*	4.39
TYPE: SPM			WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1	1	1/ 2	.00*	.09	.29	.36	.19	.21	1.13
2	52	1/ 2	.00*	.10	.17	.27	.12	.10	.76
3	60	1/ 2	.00*	1.49	6.42	5.57	1.78	1.55	16.80
1	1	2/ 2	.00*	.29	.83	.48	.17	.19	1.96
2	50	2/ 2	.00*	.47	1.39	.62	.15	.15	2.78
3	59	2/ 2	.00*	.38	.98	.68	.22	.40	2.66
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS						
1	61	1/ 2	44.47	179.65	288.95	273.27	84.69	44.19	915.21
2	61	1/ 2	.02	4.85	52.23	348.97	343.93	397.50	1147.50
2	61	2/ 2	.00*	2.74	24.36	76.30	40.47	26.60	170.48

CRUISE- 99 STATION- 6

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	6	61	76 4 8	1008	122 21.44	47 35.43

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1	61	2/ 2	83.81	313.26	548.71	658.54	180.09	71.18	1855.60

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	61	1/ 2	H2O =43.2	POROSITY = .2232
			SOLIDS=56.8	VOID RATIO= .2873
2	61	1/ 2	H2O =28.1	POROSITY = .1288
			SOLIDS=71.9	VOID RATIO= .1478
2	61	2/ 2	H2O =32.5	POROSITY = .1540
			SOLIDS=67.5	VOID RATIO= .1820
1	61	2/ 2	H2O =33.4	POROSITY = .1594
			SOLIDS=66.6	VOID RATIO= .1896

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	61	1/ 2	O-G = 2.19
2	61	1/ 2	O-G = .32
2	61	2/ 2	O-G = .55
1	61	2/ 2	O-G = .69

CRUISE- 99 STATION- 6

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	7	66	76 4 8	1016	122 21.40	47 35.43

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	66	1/ 2	52.13	284.05	547.83	637.24	195.12	58.34	1774.70
1	66	1/ 2	71.76	335.70	581.97	522.24	126.90	56.41	1695.00
2	63	2/ 2	70.98	522.83	958.71	749.09	160.86	67.93	2530.40
1	63	2/ 2	65.43	495.49	933.06	710.11	153.12	73.29	2430.50

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	66	1/ 2	H2O =35.9	POROSITY = .1744
			SOLIDS=64.1	VOID RATIO= .2112
1	66	1/ 2	H2O =54.9	POROSITY = .3146
			SOLIDS=45.1	VOID RATIO= .4591
2	63	2/ 2	H2O =46.8	POROSITY = .2492
			SOLIDS=53.2	VOID RATIO= .3319
1	63	2/ 2	H2O =57.9	POROSITY = .3418
			SOLIDS=42.1	VOID RATIO= .5192

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
2	66	1/ 2	O-G = .84
1	66	1/ 2	O-G = 1.17
2	63	2/ 2	O-G = 2.44

CRUISE- 99 STATION- 7

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	7	63	76 4 8	1027	122 21.40	47 35.43

DC DEPTH REPL   2CB   3CB   4CB   5CB   6CB   7CB   TCB

TYPE:OIL AND GPEASE   WITH UNITS: MG OIL-GR PEP GM DPY MASS

1 63   2/ 2 O-G   = 2.75

CPUISE- 99 STATION- 7

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	8	66	76 4 8	1035	122 21.35	47 35.43

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	66	1/ 2	1.46	62.68	161.89	100.33	44.20	34.34	404.68
1	66	1/ 2	36.94	216.92	396.97	390.17	90.41	46.83	1178.20
2	66	2/ 2	.00*	9.51	50.08	129.21	58.25	40.89	287.96
1	66	2/ 2	11.50	137.60	222.78	203.23	59.54	17.07	651.72

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	66	1/ 2	H2O =31.4	POROSITY = .1471
			SOLIDS=68.6	VOID RATIO= .1725
1	66	1/ 2	H2O =45.6	POROSITY = .2400
			SOLIDS=54.4	VOID RATIO= .3158
2	66	2/ 2	H2O =36.8	POROSITY = .1799
			SOLIDS=63.2	VOID RATIO= .2194
1	66	2/ 2	H2O =49.4	POROSITY = .2695
			SOLIDS=50.6	VOID RATIO= .3689

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
2	66	1/ 2	O-G = .93
1	66	1/ 2	O-G = 1.16
2	66	2/ 2	O-G = 1.06

CRUISE- 99 STATION- 8

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	8	66	76 4 8	1041	122 21.35	47 35.43

DC DEPTH REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1 66 2/ 2 O-G = .95

CRUISE- 99 STATION- 8

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	9	60	76 4 8	1048	122 21.49	47 35.40

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	60	1/ 2	33.45	106.21	154.17	180.82	72.03	47.38	594.06
1	60	1/ 2	72.81	457.13	872.45	1043.60	295.90	95.84	2837.80
1	59	2/ 2	28.48	259.11	479.12	492.86	152.49	49.51	1461.60
2	59	2/ 2	.01*	6.44	40.56	151.93	117.94	105.61	422.50

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	60	1/ 2	H2O =36.5	POROSITY = .1784
			SOLIDS=63.5	VOID RATIO= .2172
1	60	1/ 2	H2O =49.9	POROSITY = .2735
			SOLIDS=50.1	VOID RATIO= .3764
1	59	2/ 2	H2O =50.4	POROSITY = .2769
			SOLIDS=49.6	VOID RATIO= .3830
2	59	2/ 2	H2O =27.9	POROSITY = .1272
			SOLIDS=72.1	VOID RATIO= .1457

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
2	60	1/ 2	O-G = .67
1	60	1/ 2	O-G = 1.03
1	59	2/ 2	O-G = 1.13

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATTITUDE-N
99	9	59	76	4	8	1054	122 21.49	47 35.40

DC DEPTH REPL   2CB   3CB   4CB   5CB   6CB   7CB   TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

2 59   2/ 2 O-G = .41

CRUISE- 99 STATION- 9

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	10	1	76 4 8	22	122 21.44	47 35.40

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	1	1/ 2	.00*	.34	1.05	.98	.30	.04	2.72
2	50	1/ 2	.00*	.34	.81	.73	.18	.00*	2.06
3	59	1/ 2	.00*	.75	1.56	1.86	.28	.15	4.61
TYPE: SPM				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	1	1/ 2	.00*	.13	.42	.68	.32	.31	1.85
2	50	1/ 2	.00*	.21	.65	.33	.14	.10	1.42
3	59	1/ 2	.00*	.63	3.48	4.00	1.43	.87	10.41
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1	59	1/ 2	31.62	202.63	557.02	731.61	211.12	67.99	1802.00
2	59	1/ 2	23.60	167.40	361.95	358.86	88.93	43.59	1044.30
1	59	2/ 2	51.34	295.56	490.48	465.15	125.88	66.21	1494.60
2	59	2/ 2	11.72	79.13	192.71	311.45	167.54	232.13	994.68

CRUISE- 99 STATION- 10

```
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
    99      10           59       76   4   6      1101      122 21.44    47 35.40

DC DEPTH REPL      2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:PCT H2O,SOLIDS....     WITH UNITS:PERCENT; UNITLESS RATIO

1  59      1/ 2 H2O    =42.4                         POROSITY   = .2176
                SOLIDS=57.6                          VOID RATIO= .2781
2  59      1/ 2 H2O    =39.8                         POROSITY   = .1998
                SOLIDS=60.2                          VOID RATIO= .2498
1  59      2/ 2 H2O    =40.4                         POROSITY   = .2039
                SOLIDS=59.6                          VOID RATIO= .2562
2  59      2/ 2 H2O    =35.9                         POROSITY   = .1746
                SOLIDS=64.1                          VOID RATIO= .2116

TYPE:OIL AND GREASE         WITH UNITS: MG OIL-GR PER GM DRY MASS

1  59      1/ 2 O-G    =   .95
2  59      1/ 2 O-G    = 1.65
1  59      2/ 2 O-G    =   .86
2  59      2/ 2 O-G    =   .66
```

CRUISE- 99 STATION- 10

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	11	63	76 4 8	1112	122 21.40	47 35.40

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1	63	1/ 2	61.75	459.52	1030.50	1063.80	275.12	91.35	2982.10
2	63	1/ 2	26.70	174.29	339.90	306.69	74.09	37.14	958.81
2	65	2/ 2	59.51	335.12	493.34	359.95	96.12	57.72	1401.80
1	65	2/ 2	86.40	809.21	1522.30	1116.20	220.66	92.19	3847.10

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	63	1/ 2	H2O =49.2	POROSITY = .2675
			SOLIDS=50.8	VOID RATIO= .3653
2	63	1/ 2	H2O =40.6	POROSITY = .2054
			SOLIDS=59.4	VOID RATIO= .2584
2	65	2/ 2	H2O =35.7	POROSITY = .1731
			SOLIDS=64.3	VOID RATIO= .2094
1	65	2/ 2	H2O =55.8	POROSITY = .3230
			SOLIDS=44.2	VOID RATIO= .4771

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	63	1/ 2	O-G = 1.18
2	63	1/ 2	O-G = 1.01
2	65	2/ 2	O-G = .95

CRUISE- 99 STATION- 11

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	11	65	76	4	8	1117	122 21.40	47 35.40

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1 65 2/ 2 O-G = 2.05

CRUISE- 99 STATION- 11

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	12	64	76 4 8	1124	122 21.35	47 35.40

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	64	1/ 2	.01*	10.86	48.04	146.33	70.84	39.01	315.08
1	64	1/ 2	46.76	322.86	657.45	692.46	234.23	154.07	2107.80
1	64	2/ 2	63.87	369.05	711.12	706.45	173.26	67.42	2091.20
2	64	2/ 2	6.91	53.58	105.80	100.69	26.76	19.97	313.71

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	64	1/ 2	H2O =30.6	POROSITY = .1425
			SOLIDS=69.4	VOID RATIO= .1662
1	64	1/ 2	H2O =51.5	POROSITY = .2863
			SOLIDS=48.5	VOID RATIO= .4011
1	64	2/ 2	H2O =74.4	POROSITY = .5237
			SOLIDS=25.5	VOID RATIO=1.0996
2	64	2/ 2	H2O =44.9	POROSITY = .2350
			SOLIDS=55.1	VOID RATIO= .3072

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
2	64	1/ 2	O-G = .48
1	64	1/ 2	O-G = 1.02
1	64	2/ 2	O-G = 1.58

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	12	64	76	4	8	1134	122 21.35	47 35.40

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2 64 2/ 2 O-G = .69

CRUISE- 99 STATION- 12

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	13	56	76 4 8	1140	122 21.49	47 35.37

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1	56	1/ 2	7.38	60.58	129.96	192.20	77.91	53.51	521.54
2	56	2/ 2	.01	3.25	34.06	119.63	74.67	62.74	294.35
1	56	2/ 2	23.12	114.02	249.47	287.27	92.06	47.92	813.86

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
1	56	1/ 2	H2O =38.2	POROSITY = .1889
			SOLIDS=61.8	VOID RATIO= .2329
2	56	2/ 2	H2O =23.8	POROSITY = .1054
			SOLIDS=76.2	VOID RATIO= .1178
1	56	2/ 2	H2O =44.6	POROSITY = .2331
			SOLIDS=55.4	VOID RATIO= .3040

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
1	56	1/ 2	O-G = 1.52
2	56	2/ 2	O-G = .41
1	56	2/ 2	O-G = 1.05

CRUISE- 99 STATION- 13

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	14	57	76 4 8	1153	122 21.44	47 35.37

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
2	57	1/ 2	.01	5.22	71.93	259.85	176.80	140.63	654.44
1	57	1/ 2	35.66	104.98	216.88	275.70	84.66	37.74	755.62
1	58	2/ 2	59.53	299.54	516.49	526.48	108.01	48.50	1558.60
2	58	2/ 2	9.81	57.86	102.14	153.43	70.05	61.27	454.55

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

2	57	1/ 2	H2O =32.2	POROSITY = .1521
			SOLIDS=67.8	VOID RATIO= .1793
1	57	1/ 2	H2O =36.5	POROSITY = .1780
			SOLIDS=63.5	VOID RATIO= .2165
1	58	2/ 2	H2O =48.5	POROSITY = .2624
			SOLIDS=51.5	VOID RATIO= .3558
2	58	2/ 2	H2O =36.5	POROSITY = .1783
			SOLIDS=63.5	VOID RATIO= .2171

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2	57	1/ 2	O-G = .86
1	57	1/ 2	O-G = .44
1	58	2/ 2	O-G = .96

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	14	58	76	4	8	1200	122 21.44	47 35.37

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2 58 2/ 2 O-G = .63

CRUISE- 99 STATION- 14

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATTITUDE-N
99	15	61	76 4 8	1207	122 21.40	47 35.37

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	61	1/ 2	.00*	1.90	21.21	55.73	18.03	9.16	106.03
1	61	1/ 2	47.50	169.67	322.83	432.08	135.19	67.24	1174.50
2	58	2/ 2	.00*	10.21	35.87	86.32	42.70	35.46	210.56
1	58	2/ 2	54.79	257.45	419.90	319.00	66.35	46.71	1164.20

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	61	1/ 2	H2O =23.4	POROSITY = .1033
			SOLIDS=76.6	VOID RATIO= .1152
1	61	1/ 2	H2O =39.1	POROSITY = .1951
			SOLIDS=60.9	VOID RATIO= .2424
2	58	2/ 2	H2O =34.0	POROSITY = .1628
			SOLIDS=66.0	VOID RATIO= .1945
1	58	2/ 2	H2O =47.6	POROSITY = .2554
			SOLIDS=52.4	VOID RATIO= .3431

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
2	61	1/ 2	O-G = .21
1	61	1/ 2	O-G = .59
2	58	2/ 2	O-G = .53

CRUISE- 99 STATION- 15

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	15	58	76	4	8	1212	122 21.40	47 35.37

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PEP GM DPY MASS

1 58   2/ 2 O-G   = .98

CRUISE- 99 STATION- 15

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	16	62	76 4 8	1223	122 21.35	47 35.37

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	62	1/ 2	.00*	1.76	32.36	98.47	35.96	19.93	188.49
1	62	1/ 2	19.14	112.86	261.68	348.22	105.73	57.18	904.80
1	62	2/ 2	9.09	78.38	201.42	278.18	84.23	41.88	693.18

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	62	1/ 2	H2O =31.7	POROSITY = .1491
			SOLIDS=68.3	VOID RATIO= .1753
1	62	1/ 2	H2O =43.4	POROSITY = .2247
			SOLIDS=56.6	VOID RATIO= .2898
1	62	2/ 2	H2O =38.0	POROSITY = .1877
			SOLIDS=62.0	VOID RATIO= .2310

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
2	62	1/ 2	O-G = 1.47
1	62	1/ 2	O-G = 1.00
1	62	2/ 2	O-G = .60

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	17	1	76 4 8	1	122 22.39	47 35.33

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCP
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	1	1/ 2	.00*	.78	.52	.64	.18	.00*	2.12
2	57	1/ 2	.00*	.35	.47	.40	.05	.07	1.36
3	63	1/ 2	.00*	.22	.64	.70	.19	.00*	1.76
1	1	2/ 2	.00*	.67	1.16	1.11	.31	.00*	3.24
2	65	2/ 2	.00*	.52	.57	.59	.31	.03	2.01
3	75	2/ 2	.00*	.32	1.00	1.01	.19	.10	2.63
TYPE: SPM				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	1	1/ 2	.00*	.41	.87	.65	.21	.24	2.39
2	57	1/ 2	.00*	.19	.53	.39	.13	.12	1.36
3	63	1/ 2	.00*	.44	.75	.40	.13	.06	1.78
1	1	2/ 2	.00*	.63	.86	.33	.10	.08	1.99
2	65	2/ 2	.00*	.20	.38	.30	.08	.06	1.02
3	75	2/ 2	.00*	.08	.45	.38	.11	.16	1.18
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1	60	1/ 2	.00*	3.01	11.31	34.11	15.25	8.96	72.65
2	60	1/ 2	.00*	2.34	4.62	16.47	6.10	4.07	33.60
2	53	2/ 2	.00*	.21	1.52	4.96	2.33	1.98	11.02

CRUISE- 99 STATION- 17

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	17	53	76 4 8	1310	122 22.39	47 35.33

DC DEPTH REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC DEPTH REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1 53 2/ 2	.00*	1.99	14.09	39.59	17.40	11.94	85.02

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	60	1/ 2	H2O =31.4	POROSITY = .1473
			SOLIDS=68.6	VOID RATIO= .1728
2	60	1/ 2	H2O =24.7	POROSITY = .1102
			SOLIDS=75.3	VOID RATIO= .1239
2	53	2/ 2	H2O =28.1	POROSITY = .1287
			SOLIDS=71.9	VOID RATIO= .1477
1	53	2/ 2	H2O =35.1	POROSITY = .1693
			SOLIDS=64.9	VOID RATIO= .2038

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	60	1/ 2	O-G = .42
2	60	1/ 2	O-G = .32
2	53	2/ 2	O-G = .33
1	53	2/ 2	O-G = .37

CRUISE- 99 STATION- 17

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	18	57	76	4	8	1317	122 22.34	47 35.30

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	57	1/ 2	.00*	.32	.79	3.26	1.50	1.48	7.34
1	57	1/ 2	.00*	1.63	12.84	40.19	21.25	13.35	89.26
2	59	2/ 2	.00*	.31	.71	1.99	.91	.29	4.22
1	59	2/ 2	4.43	8.32	12.02	33.10	22.69	16.28	96.84

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	57	1/ 2	H2O =30.0	POROSITY = .1394
			SOLIDS=70.0	VOID RATIO= .1619
1	57	1/ 2	H2O =35.9	POROSITY = .1745
			SOLIDS=64.1	VOID RATIO= .2114
2	59	2/ 2	H2O =27.0	POROSITY = .1225
			SOLIDS=73.0	VOID RATIO= .1396
1	59	2/ 2	H2O =47.1	POROSITY = .2514
			SOLIDS=52.9	VOID RATIO= .3358

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
2	57	1/ 2	O-G = .37
1	57	1/ 2	O-G = .44
2	59	2/ 2	O-G = .24

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	18	59	76	4	8	1321	122 22.34	47 35.30

DC DEPTH REPL   2CB   3CB   4CB   5CB   6CB   7CB   TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

1. 59   2/ 2 O-G   =   .45

CRUISE- 99 STATION- 18

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	19	1	76 4 8	7	122 20.38	47 36.00

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER			WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1	1	1/ 2	.00*	1.10	1.18	1.25	.11	.11	3.75
2	50	1/ 2	.00*	.70	.73	.74	.20	.00*	2.37
3	58	1/ 2	.00*	.73	1.25	1.39	.52	.06	3.95
1	1	2/ 2	.00*	.63	1.24	1.13	.14	.15	3.29
2	50	2/ 2	.00*	.64	1.18	1.45	.32	.14	3.73
3	59	2/ 2	.00*	.39	.71	.96	.09	.00*	2.14
TYPE: SPM			WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1	1	1/ 2	.00*	.37	.92	.81	.29	.25	2.65
2	50	1/ 2	.00*	.05	.53	.32	.13	.22	1.24
3	59	1/ 2	.00*	.19	.66	.52	.20	.33	1.90
1	1	2/ 2	.00*	.01	.23	.34	.25	.36	1.20
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS						
2	46	1/ 2	.00*	.31	3.36	23.85	17.18	15.36	60.07
1	46	1/ 2	.01*	3.06	19.68	67.11	33.60	24.62	149.08
2	51	2/ 2	.08	2.77	13.03	47.79	28.85	20.44	113.70
1	51	2/ 2	.01*	9.25	55.14	175.89	95.92	73.77	409.99

CRUISE- 99 STATION- 19

```
----------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   99      19           46       76  4   8       1344     122 20.38    47 36.00
----------------------------------------------------------------------------------------

DC DEPTH REPL     2CB      3CB      4CB      5CB      6CB      7CP      TCP

TYPE:PCT H2O,SOLIDS....     WITH UNITS:PERCENT; UNITLESS RATIO

2   46      1/ 2 H2O    =38.1                     POROSITY   = .1884
                 SOLIDS=61.9                      VOID RATIO= .2321
1   46      1/ 2 H2O    =45.1                     POROSITY   = .2365
                 SOLIDS=54.9                      VOID RATIO= .3097
2   51      2/ 2 H2O    =39.6                     POROSITY   = .1985
                 SOLIDS=60.4                      VOID RATIO= .2477
1   51      2/ 2 H2O    =44.4                     POROSITY   = .2314
                 SOLIDS=55.6                      VOID RATIO= .3011

TYPE:OIL AND GREASE         WITH UNITS: MG OIL-GR PER GM DRY MASS

2   46      1/ 2 O-G    = 1.24
1   46      1/ 2 O-G    = 1.40
2   51      2/ 2 O-G    = 1.15
1   51      2/ 2 O-G    = 1.45
```

```
------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   99      20          59       76   4   8      1400     122 20.38    47 35.58
------------------------------------------------------------------------------------

DC DEPTH REPL      2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:PCB-SEDIMENT             WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

1  59     1/ 2      .01*      9.30     43.90    152.06     72.58     56.10    333.94
2  59     1/ 2   124.72   1355.80   1088.30    257.76     59.75     52.14   2938.50
2  63     2/ 2      .00*      5.10     17.10     63.40     36.16     30.35    152.12
1  53     2/ 2      .01*      8.74     35.27    148.69    104.06     49.59    346.36

TYPE:PCT H2O,SOLIDS....       WITH UNITS:PERCENT; UNITLESS RATIO

1  59     1/ 2 H2O    =45.1                        POROSITY   = .2365
               SOLIDS=54.9                         VOID RATIO= .3097
2  59     1/ 2 H2O    =39.0                        POROSITY   = .1945
               SOLIDS=61.0                         VOID RATIO= .2415
2  63     2/ 2 H2O    =37.5                        POROSITY   = .1847
               SOLIDS=62.5                         VOID RATIO= .2265
1  53     2/ 2 H2O    =48.9                        POROSITY   = .2653
               SOLIDS=51.1                         VOID RATIO= .3612

TYPE:OIL AND GREASE           WITH UNITS: MG OIL-GR PER GM DRY MASS

1  59     1/ 2 O-G    = 2.52
2  59     1/ 2 O-G    = 1.16
2  63     2/ 2 O-G    = 1.44

                                                 CRUISE- 99  STATION- 20
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	20	63	76 4 8	1405	122 20.38	47 35.58

OC DEPTH REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

1 53   2/ 2 O-G   = 2.55

CRUISE- 99 STATION- 20

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
99	44	1	76 4 8	13	122 21.34	47 35.24

TYPE: WATER — WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	1	1/ 2	.00*	.41	1.22	1.24	.31	.11	3.30
2	26	1/ 2	.00*	3.58	6.98	6.10	.96	.34	17.97
3	36	1/ 2	.00*	.46	.64	.66	.22	.00*	1.98

TYPE: SPM — WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	1	1/ 2	.00*	.50	1.15	1.00	.27	.23	3.15
2	26	1/ 2	.00*	.30	1.10	1.70	.84	.40	4.35
3	36	1/ 2	.00*	8.90	6.43	.87	.11	.18	16.49

CRUISE- 99 STATION- 44

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	1	61	76 6 16	852	122 21.49	47 35.46

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	61	1/ 2	29.59	191.61	408.55	447.50	120.02	57.41	1254.70
2	61	1/ 2	.01*	3.68	24.46	73.86	39.00	43.04	184.05
1	61	2/ 2	40.93	221.35	442.25	482.97	132.33	62.91	1382.70
2	61	2/ 2	.01*	1.18	1.96	14.96	8.10	7.69	33.91

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	61	1/ 2	H2O =49.3	POROSITY = .2684
			SOLIDS=50.7	VOID RATIO= .3668
2	61	1/ 2	H2O =32.7	POROSITY = .1546
			SOLIDS=67.3	VOID RATIO= .1829
1	61	2/ 2	H2O =49.5	POROSITY = .2697
			SOLIDS=50.5	VOID RATIO= .3692
2	61	2/ 2	H2O =37.0	POROSITY = .1817
			SOLIDS=63.0	VOID RATIO= .2220

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	61	1/ 2	O-G = 1.08
2	61	1/ 2	O-G = .81
1	61	2/ 2	O-G = 1.18

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	1	61	76	6	16	903	122 21.49	47 35.46

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

2 61 2/ 2 O-G = .95

CRUISE-168 STATION- 1

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	2	60	76 6 16	912	122 21.44	47 35.46

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	60	1/ 2	45.21	261.37	500.36	462.66	107.68	47.87	1425.10
2	60	1/ 2	.70	8.76	36.94	68.66	32.43	25.94	173.43
1	61	2/ 2	32.75	289.79	592.98	550.57	142.69	81.60	1690.40
2	61	2/ 2	52.40	248.16	395.61	366.72	109.05	49.56	1221.50

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	60	1/ 2	H2O =43.8	POROSITY = .2273
			SOLIDS=56.2	VOID RATIO= .2942
2	60	1/ 2	H2O =31.1	POROSITY = .1453
			SOLIDS=68.9	VOID RATIO= .1700
1	61	2/ 2	H2O =55.1	POROSITY = .3162
			SOLIDS=44.9	VOID RATIO= .4623
2	61	2/ 2	H2O =38.2	POROSITY = .1893
			SOLIDS=61.8	VOID RATIO= .2335

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	60	1/ 2	O-G = .99
2	60	1/ 2	O-G = 1.14
1	61	2/ 2	O-G = 1.06

CRUISE-168 STATION- 2

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	2	61	76	6	16	926	122 21.44	47 35.46

DC DEPTH REPL   2CB   3CB   4CB   5CB   6CB   7CB   TCP

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

2 61   2/ 2 O-G   = 1.45

CRUISE-168 STATION- 2

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	3	63	76 6 16	931	122 21.40	47 35.46

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS						
1	63	1/ 2	7.61	77.62	153.20	176.18	58.03	24.63	497.27
2	63	1/ 2	.01*	.88	8.75	23.84	11.85	9.32	54.65
1	64	2/ 2	18.02	98.39	204.71	249.87	73.32	36.19	680.50
2	64	2/ 2	.33	2.24	10.26	28.20	15.43	12.87	69.83

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	63	1/ 2	H2O =38.9	POROSITY = .1935
			SOLIDS=61.1	VOID RATIO= .2399
2	63	1/ 2	H2O =28.8	POROSITY = .1327
			SOLIDS=71.2	VOID RATIO= .1529
1	64	2/ 2	H2O =42.1	POROSITY = .2152
			SOLIDS=57.9	VOID RATIO= .2743
2	64	2/ 2	H2O =32.7	POROSITY = .1548
			SOLIDS=67.3	VOID RATIO= .1832

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	63	1/ 2	O-G = .96
2	63	1/ 2	O-G = .44
1	64	2/ 2	O-G = .79

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	3	64	76 6 16	938	122 21.40	47 35.46

```
DC DEPTH REPL     2CB      3CB      4CB      5CB      6CB      7CB      TCB

TYPE:OIL AND GREASE          WITH UNITS: MG OIL-GR PER GM DRY MASS

2  64     2/ 2 O-G    =   .84
```

CRUISE-168 STATION- 3

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	4	67	76 6 16	945	122 21.35	47 35.46

OC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS						
1	67	1/ 2	22.00	181.37	374.01	377.15	105.94	61.16	1121.60
2	67	1/ 2	.01	25.03	72.55	79.58	29.43	27.00	233.60
1	67	2/ 2	11.02	152.05	354.09	486.46	175.61	115.92	1295.20
2	67	2/ 2	.01*	4.61	19.92	47.61	37.33	29.45	138.92

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	67	1/ 2	H2O =52.2	POROSITY = .2916
			SOLIDS=47.8	VOID RATIO= .4116
2	67	1/ 2	H2O =32.2	POROSITY = .1522
			SOLIDS=67.8	VOID RATIO= .1795
1	67	2/ 2	H2O =50.8	POROSITY = .2805
			SOLIDS=49.2	VOID RATIO= .3897
2	67	2/ 2	H2O =36.9	POROSITY = .1807
			SOLIDS=63.1	VOID RATIO= .2206

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	67	1/ 2	O-G = 1.20
2	67	1/ 2	O-G = 1.40
1	67	2/ 2	O-G = 1.31

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	4	67	76 6 16	949	122 21.35	47 35.46

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2 67 2/ 2 O-G = .86

CRUISE-168 STATION- 4

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	5	60	76 6 16	955	122 21.49	47 35.43

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1	60	1/ 2	21.80	165.34	278.71	231.21	59.22	18.13	774.42
2	60	1/ 2	.01	7.28	31.57	226.18	189.60	296.16	750.80
1	60	2/ 2	14.69	167.69	304.37	307.97	93.54	39.10	927.36
2	60	2/ 2	3.61	32.37	92.36	234.72	170.48	141.95	675.49

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	60	1/ 2	H2O =50.2	POROSITY = .2757
			SOLIDS=49.8	VOID RATIO= .3807
2	60	1/ 2	H2O =30.2	POROSITY = .1402
			SOLIDS=69.8	VOID RATIO= .1631
1	60	2/ 2	H2O =50.6	POROSITY = .2787
			SOLIDS=49.4	VOID RATIO= .3865
2	60	2/ 2	H2O =34.8	POROSITY = .1678
			SOLIDS=65.2	VOID RATIO= .2017

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	60	1/ 2	O-G = .90
2	60	1/ 2	O-G = .59
1	60	2/ 2	O-G = 1.09

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	5	60	76	6	16	1001	122 21.49	47 35.43

DC DEPTH REPL   2CB   3CB   4CB   5CB   6CB   7CB   TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

2 60   2/ 2 O-G = .70

CRUISE-168 STATION- 5

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	6	60	76 6 16	1010	122 21.44	47 35.43

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	60	1/ 2	31.21	235.33	378.04	308.48	51.33	34.78	1039.20
2	60	1/ 2	13.78	99.51	189.64	202.76	61.33	38.14	605.16
1	59	2/ 2	28.03	185.59	331.83	326.57	84.78	43.66	1000.50
2	59	2/ 2	.00*	3.52	36.13	135.36	91.92	69.94	336.87

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
1	60	1/ 2	H2O =50.5	POROSITY = .2778
			SOLIDS=49.5	VOID RATIO= .3847
2	60	1/ 2	H2O =36.5	POROSITY = .1783
			SOLIDS=63.5	VOID RATIO= .2170
1	59	2/ 2	H2O =50.0	POROSITY = .2743
			SOLIDS=50.0	VOID RATIO= .3790
2	59	2/ 2	H2O =28.9	POROSITY = .1332
			SOLIDS=71.1	VOID RATIO= .1537

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
1	60	1/ 2	O-G = 1.43
2	60	1/ 2	O-G = 1.26
1	59	2/ 2	O-G = 1.16

CRUISE-168 STATION- 6

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	6	59	76 6 16	1015	122 21.44	47 35.43

DC DEPTH REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

2 59   2/ 2 O-G   = 1.15

CRUISE-168 STATION- 6

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	7	60	76 6 16	1022	122 21.40	47 35.43

TYPE:PCB-SEDIMENT — WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	60	1/ 2	67.10	502.00	1061.40	1081.50	296.24	104.32	3112.50
2	60	1/ 2	31.20	293.90	621.93	588.00	146.16	70.34	1751.50
1	65	2/ 2	42.06	289.91	554.66	536.83	142.70	55.00	1621.20
2	65	2/ 2	12.96	90.04	171.42	180.90	50.90	29.30	535.52

TYPE:PCT H2O,SOLIDS.... — WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
1	60	1/ 2	H2O =51.8	POROSITY = .2884
			SOLIDS=48.2	VOID RATIO= .4053
2	60	1/ 2	H2O =41.2	POROSITY = .2090
			SOLIDS=58.8	VOID RATIO= .2642
1	65	2/ 2	H2O =66.9	POROSITY = .4324
			SOLIDS=33.1	VOID RATIO= .7619
2	65	2/ 2	H2O =33.7	POROSITY = .1608
			SOLIDS=66.3	VOID RATIO= .1916

TYPE:OIL AND GREASE — WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
1	60	1/ 2	O-G = 1.68
2	60	1/ 2	O-G = 1.68
1	65	2/ 2	O-G = 1.38

CRUISE-168 STATION- 7

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	7	65	76	6	16	1027	122 21.40	47 35.43

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2 65 2/ 2 O-G = 1.79

CRUISE-168 STATION- 7

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	8	65	76 6 16	1034	122 21.35	47 35.43

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	65	1/ 2	18.21	224.96	389.68	358.22	111.06	40.63	1142.80
2	65	1/ 2	2.42	19.63	53.94	101.87	55.38	39.39	272.62
1	66	2/ 2	65.99	384.44	558.56	429.10	80.42	40.89	1559.40
2	66	2/ 2	10.83	66.31	132.55	201.11	92.32	70.85	573.97

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	65	1/ 2	H2O =51.2	POROSITY = .2838
			SOLIDS=48.8	VOID RATIO= .3962
2	65	1/ 2	H2O =32.7	POROSITY = .1550
			SOLIDS=67.3	VOID RATIO= .1834
1	66	2/ 2	H2O =51.2	POROSITY = .2836
			SOLIDS=48.8	VOID RATIO= .3958
2	66	2/ 2	H2O =34.1	POROSITY = .1636
			SOLIDS=65.9	VOID RATIO= .1955

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	65	1/ 2	O-G = 1.06
2	65	1/ 2	O-G = .72
1	66	2/ 2	O-G = .85

CRUISE-168 STATION- 8

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	8	66	76 6 16	1039	122 21.35	47 35.43

DC DEPTH REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2 66 2/ 2 O-G = .84

CRUISE-168 STATION- 8

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	9	59	76 6 16	1045	122 21.49	47 35.40

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	59	1/ 2	54.72	341.64	673.44	622.00	148.18	59.29	1899.30
2	59	1/ 2	20.95	105.98	172.46	174.75	64.99	53.15	592.29
1	59	2/ 2	25.37	236.54	571.30	710.07	203.14	69.37	1815.80
2	59	2/ 2	.01	11.00	32.68	60.97	25.89	19.92	150.47

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

```
1  59   1/ 2 H2O    =59.7                   POROSITY   = .3581
             SOLIDS=40.3                    VOID RATIO= .5580
2. 59   1/ 2 H2O    =38.9                   POROSITY   = .1940
             SOLIDS=61.1                    VOID RATIO= .2406
1  59   2/ 2 H2O    =52.5                   POROSITY   = .2941
             SOLIDS=47.5                    VOID RATIO= .4167
2  59   2/ 2 H2O    =25.8                   POROSITY   = .1158
             SOLIDS=74.2                    VOID RATIO= .1310
```

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
1  59   1/ 2 O-G   = 1.43
2  59   1/ 2 O-G   =  .68
1  59   2/ 2 O-G   = 1.32
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	9	59	76 6 16	1050	122 21.49	47 35.40

DC DEPTH REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

2 59   2/ 2 O-G   =   .77

CRUISE-168 STATION- 9

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	10	58	76 6 16	1055	122 21.44	47 35.40

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

OC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	58	1/ 2	18.48	152.58	437.46	646.51	177.72	80.63	1513.40
2	58	1/ 2	.01	13.37	32.42	131.57	95.52	242.41	515.30
1	58	2/ 2	67.58	502.65	1087.20	1013.70	266.56	171.47	3109.20
2	58	2/ 2	2.12	110.88	187.57	247.92	86.84	48.75	684.08

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

OC	DEPTH	REPL		
1	58	1/ 2	H2O =49.7	POROSITY = .2713
			SOLIDS=50.3	VOID RATIO= .3724
2	58	1/ 2	H2O =41.3	POROSITY = .2100
			SOLIDS=58.7	VOID RATIO= .2658
1	58	2/ 2	H2O =50.4	POROSITY = .2773
			SOLIDS=49.6	VOID RATIO= .3838
2	58	2/ 2	H2O =34.9	POROSITY = .1685
			SOLIDS=65.1	VOID RATIO= .2027

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

OC	DEPTH	REPL	
1	58	1/ 2	O-G = 1.33
2	58	1/ 2	O-G = 1.11
1	58	2/ 2	O-G = 1.24

CRUISE-168 STATION- 10

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	10	58	76	6	16	1103	122 21.44	47 35.40

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2 58 2/ 2 O-G = .94

CRUISE-168 STATION- 10

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	11	60	76 6 16	1107	122 21.40	47 35.40

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	60	1/ 2	52.86	423.75	792.50	665.52	161.22	77.56	2173.40
2	60	1/ 2	57.20	570.02	1098.30	793.07	155.30	74.70	2748.60
1	60	2/ 2	46.98	374.40	1239.40	1696.30	438.77	132.50	3928.40
2	60	2/ 2	64.70	581.52	1120.00	855.67	196.31	77.24	2895.40

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
1	60	1/ 2	H2O =56.0	POROSITY = .3248
			SOLIDS=44.0	VOID RATIO= .4811
2	60	1/ 2	H2O =46.9	POROSITY = .2497
			SOLIDS=53.1	VOID RATIO= .3328
1	60	2/ 2	H2O =52.2	POROSITY = .2918
			SOLIDS=47.8	VOID RATIO= .4120
2	60	2/ 2	H2O =46.2	POROSITY = .2444
			SOLIDS=53.8	VOID RATIO= .3235

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
1	60	1/ 2	O-G = 2.16
2	60	1/ 2	O-G = 2.55
1	60	2/ 2	O-G = 1.91

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	11	60	76 6 16	1114	122 21.40	47 35.40

DC DEPTH REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

2 60   2/ 2 O-G   = 2.02

CRUISE-168 STATION- 11

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	12	63	76 6 16	1119	122 21.35	47 35.40

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS						
1	63	1/ 2	45.61	276.43	484.16	480.32	127.04	50.34	1463.90
2	63	1/ 2	.01*	16.16	59.74	137.23	53.93	38.77	305.84
1	63	2/ 2	49.00	335.50	588.57	483.17	113.69	59.01	1628.90
2	63	2/ 2	.01	3.91	57.89	148.59	59.00	35.49	304.89

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	63	1/ 2	H2O =52.3	POROSITY = .2930
			SOLIDS=47.7	VOID RATIO= .4143
2	63	1/ 2	H2O =32.5	POROSITY = .1540
			SOLIDS=67.5	VOID RATIO= .1821
1	63	2/ 2	H2O =42.5	POROSITY = .2183
			SOLIDS=57.5	VOID RATIO= .2792
2	63	2/ 2	H2O =25.4	POROSITY = .1139
			SOLIDS=74.6	VOID RATIO= .1285

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	63	1/ 2	O-G = .85
2	63	1/ 2	O-G = .50
1	63	2/ 2	O-G = .87

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	12	63	76 6 16	1124	122 21.35	47 35.40

DC DEPTH REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

2 63   2/ 2 O-G   =   .68

CRUISE-168 STATION- 12

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
• 168	13	54	76 6 16	1237	122 21.49	47 35.37

OC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

OC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	54	1/ 2	.01	52.18	124.07	182.63	95.46	75.04	529.40
1	54	2/ 2	36.61	215.33	417.58	405.44	118.73	65.91	1259.60

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

```
1   54     1/ 2 H2O    =51.0                          POROSITY   = .2821
                SOLIDS=49.0                           VOID RATIO= .3929
1   54     2/ 2 H2O    =58.9                          POROSITY   = .3507
                SOLIDS=41.1                           VOID RATIO= .5401
```

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
1   54     1/ 2 O-G    =   .79
1   54     2/ 2 O-G    =   .91
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	14	56	76 6 16	1201	122 21.44	47 35.37

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	56	1/ 2	27.21	97.12	257.87	1151.00	1216.10	1158.40	3907.70
1	56	1/ 2	48.65	291.18	520.03	458.19	141.01	57.56	1516.60
2	56	2/ 2	19.91	97.59	145.39	135.21	40.32	24.69	463.12
1	56	2/ 2	.03	431.16	1024.40	1244.40	282.96	105.11	3088.10

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	56	1/ 2	H2O =36.4	POROSITY = .1773
			SOLIDS=63.6	VOID RATIO= .2156
1	56	1/ 2	H2O =76.1	POROSITY = .5463
			SOLIDS=23.9	VOID RATIO=1.2040
2	56	2/ 2	H2O =35.9	POROSITY = .1745
			SOLIDS=64.1	VOID RATIO= .2114
1	56	2/ 2	H2O =78.0	POROSITY = .5725
			SOLIDS=22.0	VOID RATIO=1.3392

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
2	56	1/ 2	O-G = 1.29
1	56	1/ 2	O-G = 1.34
2	56	2/ 2	O-G = 3.62

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	14	56	76	6	16	1206	122 21.44	47 35.37

DC DEPTH REPL   2CB   3CB   4CB   5CB   6CB   7CB   TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

1 56   2/ 2 O-G   = 1.80

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	15	58	76 6 16	1211	122 21.40	47 35.37

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

OC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	58	1/ 2	2.45	116.85	242.28	239.59	54.08	22.08	677.33
1	57	2/ 2	58.40	276.69	496.06	468.16	125.13	53.23	1477.70
2	57	2/ 2	.02	6.00	48.03	148.29	81.10	59.11	342.54
1	58	1/ 2	26.13	144.61	288.87	292.60	89.96	59.74	901.90
2	58	1/ 2	.01	11.19	44.03	81.39	49.00	57.42	243.05

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	58	1/ 2	H2O =46.6	POROSITY = .2474
			SOLIDS=53.4	VOID RATIO= .3287
1	57	2/ 2	H2O =50.4	POROSITY = .2770
			SOLIDS=49.6	VOID RATIO= .3832
2	57	2/ 2	H2O =32.7	POROSITY = .1548
			SOLIDS=67.3	VOID RATIO= .1832
1	58	1/ 2	H2O =53.0	POROSITY = .2983
			SOLIDS=47.0	VOID RATIO= .4251
2	58	1/ 2	H2O =28.5	POROSITY = .1309
			SOLIDS=71.5	VOID RATIO= .1506

CRUISE-168 STATION- 15

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	15	58	76 6 16	1211	122 21.40	47 35.37

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	58	1/ 2 O-G	=	.99
1	57	2/ 2 O-G	=	1.09
2	57	2/ 2 O-G	=	.45
1	58	1/ 2 O-G	=	.00
2	58	1/ 2 O-G	=	.44

CRUISE-168 STATION- 15

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	16	61	76 6 16	1221	122 21.35	47 35.37

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1	61	1/ 2	25.96	203.04	627.37	1039.50	282.87	103.82	2282.60
1	61	2/ 2	41.40	240.54	503.30	536.91	138.14	67.43	1527.70
2	61	2/ 2	.01	9.79	58.29	179.47	124.31	104.51	476.38
1	61	1/ 2	37.21	248.69	572.03	627.04	160.72	64.64	1710.30
2	60	1/ 2	2.21	15.14	76.45	200.50	82.00	45.15	421.46

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
1	61	1/ 2	H2O =53.2	POROSITY = .3004
			SOLIDS=46.8	VOID RATIO= .4294
1	61	2/ 2	H2O =58.8	POROSITY = .3496
			SOLIDS=41.2	VOID RATIO= .5375
2	61	2/ 2	H2O =32.4	POROSITY = .1531
			SOLIDS=67.6	VOID RATIO= .1807
1	61	1/ 2	H2O =55.0	POROSITY = .3154
			SOLIDS=45.0	VOID RATIO= .4606
2	60	1/ 2	H2O =31.0	POROSITY = .1452
			SOLIDS=69.0	VOID RATIO= .1699

CRUISE-168 STATION- 16

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	16	61	76 6 16	1221	122 21.35	47 35.37

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	61	1/ 2	O-G	= 2.52
1	61	2/ 2	O-G	= 2.38
2	61	2/ 2	O-G	= .50
1	61	1/ 2	O-G	= .00
2	60	1/ 2	O-G	= .94

CRUISE-168 STATION- 16

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	17	46	76 6 16	1404	122 22.39	47 35.33

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1	46	1/ 2	1.23	.75	14.02	38.98	17.21	11.27	83.46
2	46	1/ 2	.00*	.44	2.01	5.92	2.23	1.76	12.35
1	44	2/ 2	3.29	9.79	28.18	39.03	17.68	10.50	108.46
2	44	2/ 2	.00*	.22	2.83	8.72	3.63	1.24	16.64

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL			
1	46	1/ 2	H2O =39.5	POROSITY = .1979
			SOLIDS=60.5	VOID RATIO= .2467
2	46	1/ 2	H2O =24.7	POROSITY = .1102
			SOLIDS=75.3	VOID RATIO= .1238
1	44	2/ 2	H2O =34.9	POROSITY = .1683
			SOLIDS=65.1	VOID RATIO= .2024
2	44	2/ 2	H2O =24.6	POROSITY = .1096
			SOLIDS=75.4	VOID RATIO= .1230

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
1	46	1/ 2	O-G = .38
2	46	1/ 2	O-G = .23
1	44	2/ 2	O-G = .30

CRUISE-168 STATION- 17

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	17	44	76 6 16	1408	122 22.39	47 35.33

OC DEPTH REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

2 44 2/ 2 O-G = .23

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	18	55	76 6 16	1414	122 22.34	47 35.30

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	55	1/ 2	.00*	2.27	9.29	27.92	15.11	11.69	66.28
2	55	1/ 2	.00*	.16	.40	3.46	5.09	.00*	9.11
1	52	2/ 2	.00*	.89	10.84	31.15	15.22	11.54	69.65
2	52	2/ 2	.01*	.82	3.78	15.36	7.58	3.31	30.85

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL	H2O / SOLIDS		
1	55	1/ 2	H2O =43.4	POROSITY =	.2244
			SOLIDS=56.6	VOID RATIO=	.2894
2	55	1/ 2	H2O =26.2	POROSITY =	.1182
			SOLIDS=73.8	VOID RATIO=	.1341
1	52	2/ 2	H2O =39.2	POROSITY =	.1954
			SOLIDS=60.8	VOID RATIO=	.2429
2	52	2/ 2	H2O =28.8	POROSITY =	.1326
			SOLIDS=71.2	VOID RATIO=	.1529

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL		
1	55	1/ 2	O-G =	.34
2	55	1/ 2	O-G =	.11
1	52	2/ 2	O-G =	.36

CRUISE-168 STATION- 18

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	18	52	76 6 16	1425	122 22.34	47 35.30

DC DEPTH REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2 52 2/ 2 G-G = .25

CRUISE-168 STATION- 18

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	19	47	76 6 16	1327	122 20.38	47 36.00

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	47	1/ 2	2.69	7.63	45.76	156.16	82.28	65.69	360.21
2	47	1/ 2	.01*	.01	1.57	13.85	8.33	7.27	31.03
1	48	2/ 2	.01*	13.14	43.38	148.62	73.76	51.55	330.45
2	48	2/ 2	.01*	1.14	3.21	11.64	7.59	5.84	29.42

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
1	47	1/ 2	H2O =47.6	POROSITY = .2551
			SOLIDS=52.4	VOID RATIO= .3424
2	47	1/ 2	H2O =39.2	POROSITY = .1958
			SOLIDS=60.8	VOID RATIO= .2434
1	48	2/ 2	H2O =50.7	POROSITY = .2797
			SOLIDS=49.3	VOID RATIO= .3883
2	48	2/ 2	H2O =40.1	POROSITY = .2020
			SOLIDS=59.9	VOID RATIO= .2531

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
1	47	1/ 2	O-G = 1.59
2	47	1/ 2	O-G = 1.18
1	48	2/ 2	O-G = 1.51

CRUISE-168 STATION- 19

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	19	48	76 6 16	1330	122 20.38	47 36.00

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2 48 2/ 2 O-G = .00

CRUISE-168 STATION- 19

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	20	52	76 6 16	1336	122 20.38	47 35.58

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	52	1/ 2	.01	2.52	20.21	66.91	28.17	20.08	137.91
2	52	1/ 2	.66	5.90	23.12	79.60	48.18	40.72	198.20
1	54	2/ 2	.00*	2.64	15.55	51.26	21.09	15.88	106.42
2	54	2/ 2	.00*	2.18	9.29	24.44	11.09	9.14	56.15

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
1	52	1/ 2	H2O =44.4	POROSITY = .2317
			SOLIDS=55.6	VOID RATIO= .3016
2	52	1/ 2	H2O =38.0	POROSITY = .1878
			SOLIDS=62.0	VOID RATIO= .2312
1	54	2/ 2	H2O =45.4	POROSITY = .2390
			SOLIDS=54.6	VOID RATIO= .3140
2	54	2/ 2	H2O =30.5	POROSITY = .1420
			SOLIDS=69.5	VOID RATIO= .1655

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

DC	DEPTH	REPL	
1	52	1/ 2	O-G = 1.23
2	52	1/ 2	O-G = 1.17
1	54	2/ 2	O-G = 1.84

CRUISE-168 STATION- 20

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
168	20	54	76	6	16	1341	122 20.38	47 35.58

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2 54 2/ 2 O-G = .84

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
170	6	1	76 6 18	19	122 21.44	47 35.43

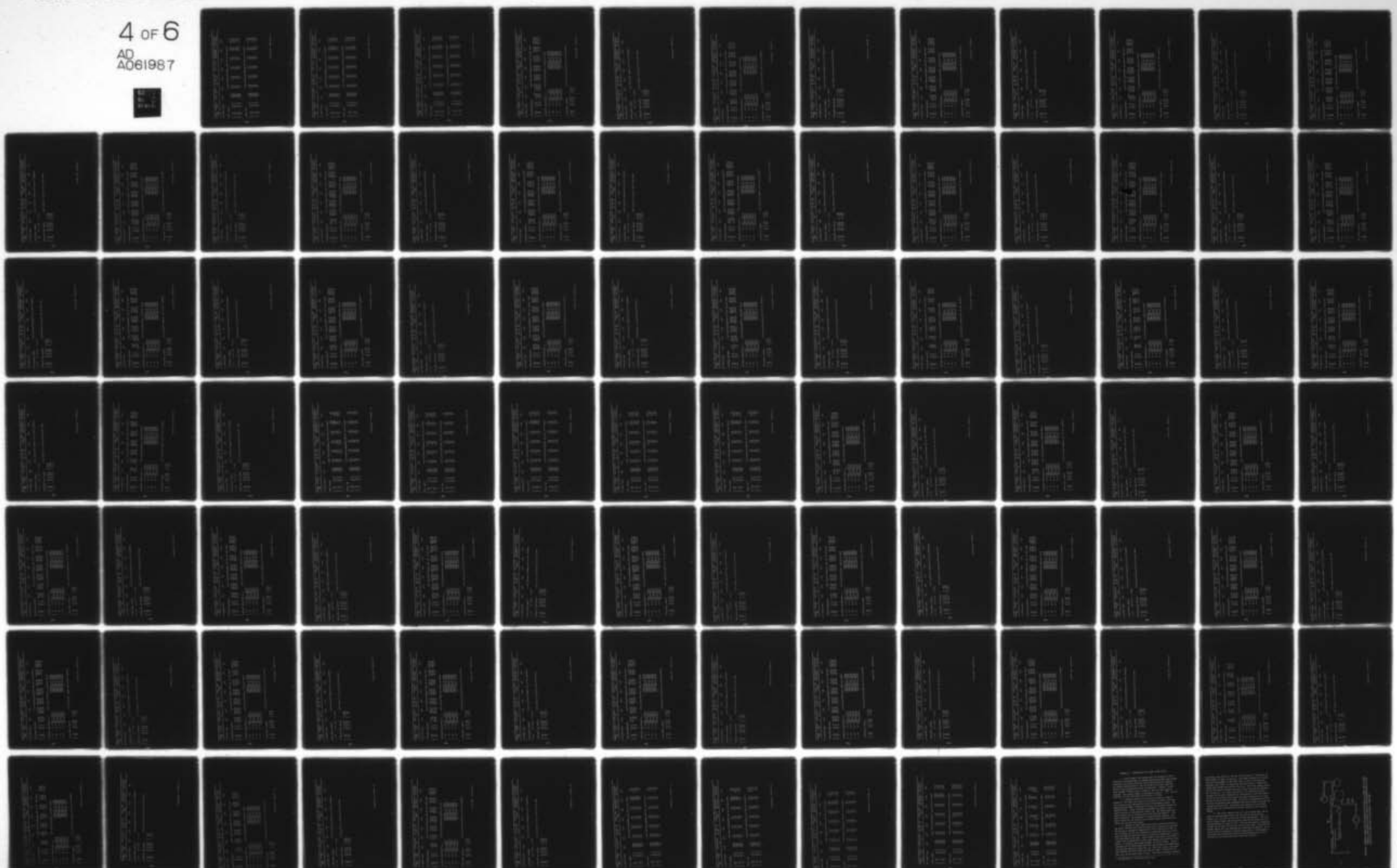
DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	1	1/ 2	.00*	.20	.62	.77	.15	.07	1.80
2	50	1/ 2	.00*	.92	1.02	1.02	.42	.00*	3.38
3	58	1/ 2	.00*	.68	.77	.90	.22	.09	2.65
1	1	2/ 2	.00*	.79	1.05	1.14	.05	.04	3.08
2	50	2/ 2	.00*	1.23	1.01	1.13	.09	.03	3.50
3	58	2/ 2	.00*	.72	1.06	.90	.22	.25	3.15
TYPE: SPM				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	1	1/ 2	.00*	.37	.42	.63	.24	.04	1.70
2	50	1/ 2	.00*	.30	.55	.54	.11	.07	1.57
3	58	1/ 2	.00*	.19	.54	.25	.01	.06	1.06
1	1	2/ 2	.00*	.32	.60	.80	.23	.07	2.02
2	50	2/ 2	.00*	.26	.29	.24	.07	.00*	.85
3	58	2/ 2	.00*	.32	.49	.50	.16	.01	1.48

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
170	10	1	76	6	18	25	122 21.44	47 35.40

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER			WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1	1	1/ 2	.00*	1.08	2.07	1.76	.42	.00*	5.32
2	50	1/ 2	.00*	1.51	1.49	1.15	.29	.00*	4.44
3	58	1/ 2	.00*	2.68	9.85	11.19	1.86	.13	25.72
1	1	2/ 2	.00*	1.40	1.26	2.04	.37	.00*	5.06
2	50	2/ 2	.00*	.68	1.08	1.06	.29	.26	3.37
3	58	2/ 2	.00*	.82	1.26	1.28	.34	.00*	3.69
TYPE: SPM			WITH UNITS:PICOGRAMS NCB PER GM ML WATER						
1	1	1/ 2	.00*	.25	.32	.62	.29	.12	1.60
2	50	1/ 2	.00*	.08	.14	.25	.06	.03	.56
3	58	1/ 2	.00*	.17	.36	.72	.23	.08	1.59
1	1	2/ 2	.00*	.32	.35	.56	.23	.04	1.50
2	50	2/ 2	.00*	.04	.13	.23	.04	.00*	.45
3	58	2/ 2	.00*	.21	.32	.45	.11	.03	1.12

AD-A061 987 WASHINGTON UNIV SEATTLE DEPT OF OCEANOGRAPHY F/G 13/3
AQUATIC DISPOSAL FIELD INVESTIGATIONS DUWAMISH WATERWAY DISPOSA--ETC(U)
JAN 78 S P PAVLOU, R N DEXTER, W HOM DACW39-76-C-0167
UNCLASSIFIED WES-TR-D-77-24-APP-E NL

4 OF 6
AD
A061987



CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
170	17	1	76	6	18	1	122 22.39	47 35.33

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	1	1/ 2	.00*	.64	.67	.75	.36	.00*	2.43
2	50	1/ 2	.00*	.34	1.04	.86	.40	.10	2.74
3	60	1/ 2	.00*	.86	.42	.32	.20	.00*	1.80
1	1	2/ 2	.00*	.36	.69	.85	.14	.10	2.14
2	50	2/ 2	.00*	.21	.28	.36	.11	.00*	.96
3	60	2/ 2	.00*	.54	.31	.52	.24	.00*	1.62
TYPE: SPM				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	1	1/ 2	.00*	.29	.41	.49	.13	.04	1.37
2	50	1/ 2	.00*	.21	.28	.24	.04	.02	.79
3	60	1/ 2	.00*	.25	.30	.24	.05	.01	.85
1	1	2/ 2	.00*	.34	.32	.34	.06	.01	1.07
2	50	2/ 2	.00*	.32	.40	.29	.04	.04	1.09
3	60	2/ 2	.00*	.22	.28	.25	.07	.00*	.83

CRUISE-170 STATION- 17

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
170	19	1	76 6 18	7	122 20.38	47 36.00

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	1	1/ 2	.00*	.32	.79	.90	.17	.05	2.24
2	50	1/ 2	.00*	.24	.30	.40	.09	.00*	1.02
3	59	1/ 2	.00*	.47	.23	.37	.13	.00*	1.21
1	1	2/ 2	.00*	.58	.54	.59	.12	.00*	1.83
2	50	2/ 2	.00*	.25	.17	.35	.00*	.00*	.77
3	59	2/ 2	.00*	.20	.53	.49	.14	.01	1.38
TYPE: SPM				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	1	1/ 2	.00*	.91	.69	.59	.19	.22	2.60
2	50	1/ 2	.00*	.64	.68	.25	.05	.12	1.73
3	59	1/ 2	.00*	.69	.35	.28	.04	.05	1.42
1	1	2/ 2	.00*	.13	.53	.33	.17	.18	1.34
2	50	2/ 2	.00*	.21	.22	.26	.04	.00*	.77
3	59	2/ 2	.00*	.28	.35	.35	.06	.02	1.06

CRUISE-170 STATION- 19

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
170	44	1	76	6	18	13	122 21.34	47 35.24

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	1	1/ 2	.00*	.17	.48	.59	.23	.15	1.61
2	10	1/ 2	.00*	.20	.51	.42	.10	.02	1.25
3	19	1/ 2	.00*	.14	.25	.34	.05	.11	.90
1	1	2/ 2	.00*	.31	.87	1.02	.42	.00*	2.62
2	10	2/ 2	.00*	.43	.15	.40	.04	.00*	1.02
3	19	2/ 2	.00*	.63	.83	.82	.17	.03	2.48
TYPE: SPM				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
1	1	1/ 2	.00*	.66	1.01	.64	.22	.23	2.77
2	10	1/ 2	.00*	.24	.39	.28	.02	.00*	.93
3	19	1/ 2	.00*	.25	.36	.32	.07	.03	1.02
1	1	2/ 2	.00*	.43	.50	.60	.15	.01	1.69
2	10	2/ 2	.00*	.16	.26	.27	.05	.00*	.74
3	19	2/ 2	.00*	.34	.34	.22	.03	.00*	.94

CRUISE-170 STATION- 44

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	1	62	76 9 21	1045	122 21.49	47 35.46

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	62	1/ 2	.01*	7.58	46.17	138.84	70.47	43.07	306.14
1	62	1/ 2	23.05	182.96	403.62	413.25	111.11	57.66	1191.60
2	62	2/ 2	6.75	26.94	56.39	79.78	35.89	33.93	239.69
1	62	2/ 2	43.95	282.54	569.46	564.98	143.65	65.04	1669.60

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	62	1/ 2	H2O =33.9	POROSITY = .1623
			SOLIDS=66.1	VOID RATIO= .1937
1	62	1/ 2	H2O =49.5	POROSITY = .2697
			SOLIDS=50.5	VOID RATIO= .3693
2	62	2/ 2	H2O =41.1	POROSITY = .2081
			SOLIDS=58.9	VOID RATIO= .2628
1	62	2/ 2	H2O =45.1	POROSITY = .2363
			SOLIDS=54.9	VOID RATIO= .3095

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	62	1/ 2	TOC = 1.54
1	62	1/ 2	TOC = 2.28
2	62	2/ 2	TOC = 1.84

CRUISE-265 STATION- 1

```
-------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
  265      1           62       76   9  21       1100     122 21.49    47 35.46
-------------------------------------------------------------------------------------

OC DEPTH REPL     2CB      3CB      4CB      5CB      6CB      7CB      TCB

TYPE:TOTAL CARBON          WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1  62     2/ 2 TOC    = 3.20

TYPE:OIL AND GREASE        WITH UNITS: MG OIL-GR PER GM DRY MASS

2  62     1/ 2 O-G    = 1.41
1  62     1/ 2 O-G    = 1.07
2  62     2/ 2 O-G    = 1.05
1  62     2/ 2 O-G    = 1.06
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	2	64	76 9 21	1115	122 21.44	47 35.46

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	64	1/ 2	17.58	70.05	153.46	209.23	81.99	55.73	588.05
1	64	1/ 2	30.79	208.13	361.06	293.15	66.53	35.11	994.77
2	62	2/ 2	10.79	70.46	167.89	220.17	73.75	44.08	587.15
1	62	2/ 2	30.66	233.81	434.10	351.89	92.12	29.80	1172.40

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	64	1/ 2	H2O =42.2	POROSITY = .2158
			SOLIDS=57.8	VOID RATIO= .2751
1	64	1/ 2	H2O =45.0	POROSITY = .2362
			SOLIDS=55.0	VOID RATIO= .3093
2	62	2/ 2	H2O =42.1	POROSITY = .2154
			SOLIDS=57.9	VOID RATIO= .2746
1	62	2/ 2	H2O =47.1	POROSITY = .2516
			SOLIDS=52.9	VOID RATIO= .3363

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	64	1/ 2	TOC = 2.60
1	64	1/ 2	TOC = 2.92
2	62	2/ 2	TOC = 2.31

CRUISE-265 STATION- 2

```
---------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
  265      2           62        76  9  21       1130     122 21.44    47 35.46
---------------------------------------------------------------------------------------------

DC DEPTH REPL      2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:TOTAL CARBON              WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1  62      2/ 2 TOC    = 2.90

TYPE:OIL AND GREASE            WITH UNITS: MG OIL-GR PER GM DRY MASS

2  64      1/ 2 O-G    = 1.17
1  64      1/ 2 O-G    = 1.10
2  62      2/ 2 O-G    = 1.33
1  62      2/ 2 O-G    = 1.06

                                                        CRUISE-265  STATION-  2
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	3	66	76 9 21	1140	122 21.40	47 35.46

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	66	1/ 2	.91	6.06	33.94	88.99	34.56	25.52	189.98
1	66	1/ 2	35.30	160.50	300.47	308.87	87.42	41.43	934.00
2	61	2/ 2	49.17	183.73	375.41	356.85	92.11	48.97	1106.20
1	61	2/ 2	93.95	567.46	965.73	690.83	163.84	66.51	2548.30

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	66	1/ 2	H2O =31.7	POROSITY = .1493
			SOLIDS=68.3	VOID RATIO= .1755
1	66	1/ 2	H2O =48.1	POROSITY = .2591
			SOLIDS=51.9	VOID RATIO= .3498
2	61	2/ 2	H2O =37.6	POROSITY = .1850
			SOLIDS=62.4	VOID RATIO= .2270
1	61	2/ 2	H2O =51.3	POROSITY = .2844
			SOLIDS=48.7	VOID RATIO= .3975

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	66	1/ 2	TOC = 1.26
1	66	1/ 2	TOC = 2.49
2	61	2/ 2	TOC = 2.32

CRUISE-265 STATION- 3

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	3	61	76 9 21	1150	122 21.40	47 35.46

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

```
1  61     2/ 2 TOC    = 3.84
```

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
2  66     1/ 2 O-G    =  .85
1  66     1/ 2 O-G    =  .78
2  61     2/ 2 O-G    = 1.32
1  61     2/ 2 O-G    = 1.67
```

CRUISE-265 STATION- 3

```
--------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MCN DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
  265       4           69      76  9  21       1155     122 21.35    47 35.46
--------------------------------------------------------------------------------

DC DEPTH REPL       2CB       3CB       4CB       5CB       6CB       7CB       TCP

TYPE:PCB-SEDIMENT            WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

2  69      1/ 2      .01*     8.62     52.15    148.36     96.82     67.66    373.63
1  69      1/ 2    31.31    252.77    513.18    519.64    144.85     77.00   1538.80
2  67      2/ 2     5.04     58.80    240.47    250.96    111.27     94.84    761.37
1  67      2/ 2    33.46    242.91    456.55    382.79     91.58     46.37   1253.70

TYPE:PCT H2O,SOLIDS....      WITH UNITS:PERCENT; UNITLESS RATIO

2  69      1/ 2 H2O    =37.3                  POROSITY   = .1833
                SOLIDS=62.7                   VOID RATIO= .2244
1  69      1/ 2 H2O    =53.6                  POROSITY   = .3039
                SOLIDS=46.4                   VOID RATIO= .4367
2  67      2/ 2 H2O    =40.1                  POROSITY   = .2015
                SOLIDS=59.9                   VOID RATIO= .2523
1  67      2/ 2 H2O    =44.5                  POROSITY   = .2324
                SOLIDS=55.5                   VOID RATIO= .3027

TYPE:TOTAL CARBON            WITH UNITS:GM CARBON PER GM DRY SEDIMENT

2  69      1/ 2 TOC    = 1.42
1  69      1/ 2 TOC    = 3.22
2  67      2/ 2 TOC    = 1.52
```

```
--------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   265      4            67       76   9  21      1200      122 21.35    47 35.46
--------------------------------------------------------------------------------------------

DC DEPTH REPL     2CB       3CB       4CB       5CB       6CB       7CB       TCP

TYPE:TOTAL CARBON              WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1  67      2/ 2 TOC    = 3.45

TYPE:OIL AND GREASE            WITH UNITS: MG OIL-GR PER GM DRY MASS

2  69      1/ 2 O-G    =  .87
1  69      1/ 2 O-G    = 1.48
2  67      2/ 2 O-G    = 1.27
1  67      2/ 2 O-G    = 1.66
```

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	5	61	76	9	21	1210	122 21.49	47 35.43

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	61	1/ 2	17.10	93.61	173.21	221.79	92.84	68.83	667.38
1	61	1/ 2	33.09	238.80	454.10	454.60	126.00	48.59	1365.00
2	60	2/ 2	25.70	157.30	265.46	262.14	79.24	50.47	840.32
1	60	2/ 2	37.25	258.60	505.20	495.90	120.50	52.32	1470.00

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	61	1/ 2	H2O =37.1	POROSITY = .1823
			SOLIDS=62.9	VOID RATIO= .2229
1	61	1/ 2	H2O =44.3	POROSITY = .2307
			SOLIDS=55.7	VOID RATIO= .2999
2	60	2/ 2	H2O =42.3	POROSITY = .2168
			SOLIDS=57.7	VOID RATIO= .2769
1	60	2/ 2	H2O =49.1	POROSITY = .2667
			SOLIDS=50.9	VOID RATIO= .3637

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	61	1/ 2	TOC = 2.78
1	61	1/ 2	TOC = 2.70
2	60	2/ 2	TOC = 2.22

CRUISE-265 STATION- 5

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	5	60	76	9	21	1220	122 21.49	47 35.43

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

```
1  60    2/ 2 TOC   = 2.49
```

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
2  61    1/ 2 O-G   = 1.03
1  61    1/ 2 O-G   = 1.26
2  60    2/ 2 O-G   = 1.23
1  60    2/ 2 O-G   = 1.20
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	6	61	76 9 21	1225	122 21.44	47 35.43

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	61	1/ 2	37.30	153.45	258.16	271.15	95.23	59.92	875.21
1	61	1/ 2	35.86	292.50	551.00	474.70	102.80	58.26	1515.00
2	62	2/ 2	22.23	122.61	224.56	226.02	62.02	34.56	692.00
1	62	2/ 2	42.28	277.84	545.58	539.71	130.70	51.67	1587.80

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	61	1/ 2	H2O =38.1	POROSITY = .1884
			SOLIDS=61.9	VOID RATIO= .2322
1	61	1/ 2	H2O =44.4	POROSITY = .2319
			SOLIDS=55.6	VOID RATIO= .3019
2	62	2/ 2	H2O =37.3	POROSITY = .1834
			SOLIDS=62.7	VOID RATIO= .2246
1	62	2/ 2	H2O =46.1	POROSITY = .2441
			SOLIDS=53.9	VOID RATIO= .3229

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	61	1/ 2	TOC = 2.05
1	61	1/ 2	TOC = 3.63
2	62	2/ 2	TOC = 2.90

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	6	62	76 9 21	1235	122 21.44	47 35.43

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCP

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1	62	2/ 2	TOC	= 3.77

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2	61	1/ 2	O-G	= .93
1	61	1/ 2	O-G	= 1.40
2	62	2/ 2	O-G	= 1.26
1	62	2/ 2	O-G	= 1.10

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	7	65	76 9 21	1245	122 21.40	47 35.43

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	65	1/ 2	29.63	232.95	506.93	613.83	170.60	80.22	1634.20
1	65	1/ 2	87.38	687.33	1279.50	1118.70	229.36	124.77	3527.00
2	65	2/ 2	.02	934.83	1651.80	1156.40	226.09	103.72	4072.90
1	65	2/ 2	40.59	427.79	1010.70	1253.40	285.18	123.53	3141.20

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	65	1/ 2	H2O =43.2	POROSITY = .2227
			SOLIDS=56.8	VOID RATIO= .2865
1	65	1/ 2	H2O =46.4	POROSITY = .2463
			SOLIDS=53.6	VOID RATIO= .3268
2	65	2/ 2	H2O =49.2	POROSITY = .2678
			SOLIDS=50.8	VOID RATIO= .3657
1	65	2/ 2	H2O =44.1	POROSITY = .2293
			SOLIDS=55.9	VOID RATIO= .2974

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	65	1/ 2	TOC = 2.64
1	65	1/ 2	TOC = 3.65
2	65	2/ 2	TOC = 3.64

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	7	65	76 9 21	1250	122 21.40	47 35.43

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

```
1  65     2/ 2 TOC    = 3.09
```

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
2  65     1/ 2 O-G    = 2.98
1  65     1/ 2 O-G    = 1.68
2  65     2/ 2 O-G    =  .00
1  65     2/ 2 O-G    = 1.34
```

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	8	68	76	9	21	1300	122 21.35	47 35.43

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	68	2/ 2	24.26	130.57	235.21	256.68	81.77	47.49	775.98
1	68	1/ 2	57.71	201.77	405.01	441.76	112.43	63.03	1281.70
2	67	2/ 2	.01	159.42	248.41	282.01	97.47	62.24	849.57
1	67	2/ 2	55.86	281.43	469.70	447.78	101.84	41.87	1398.50

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	68	2/ 2	H2O =41.8	POROSITY = .2132
			SOLIDS=58.2	VOID RATIO= .2709
1	68	1/ 2	H2O =50.1	POROSITY = .2746
			SOLIDS=49.9	VOID RATIO= .3785
2	67	2/ 2	H2O =41.6	POROSITY = .2118
			SOLIDS=58.4	VOID RATIO= .2687
1	67	2/ 2	H2O =46.0	POROSITY = .2432
			SOLIDS=54.0	VOID RATIO= .3213

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	68	2/ 2	TOC = 2.38
1	68	1/ 2	TOC = 3.01
2	67	2/ 2	TOC = 2.12

CRUISE-265 STATION- 8

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	8	67	76 9 21	1305	122 21.35	47 35.43

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

```
1  67     2/ 2 TOC   = 2.39
```

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
2  68     2/ 2 O-G   = 1.29
1  68     1/ 2 O-G   = 1.21
2  67     2/ 2 O-G   = 1.02
1  67     2/ 2 O-G   = 1.08
```

CRUISE	STATION	WATER DEPTH	YR MCN DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	9	62	76 9 21	1325	122 21.49	47 35.40

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	62	1/ 2	24.94	117.61	193.42	203.10	61.26	35.21	635.54
1	62	1/ 2	43.42	438.67	893.59	588.17	113.50	72.03	2149.40
2	61	2/ 2	.01*	128.15	206.82	219.89	70.39	40.40	665.66
1	61	2/ 2	25.26	252.40	439.52	302.09	52.14	20.99	1092.40

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	62	1/ 2	H2O =35.9	POROSITY = .1747
			SOLIDS=64.1	VOID RATIO= .2117
1	62	1/ 2	H2O =48.7	POROSITY = .2634
			SOLIDS=51.3	VOID RATIO= .3576
2	61	2/ 2	H2O =35.7	POROSITY = .1735
			SOLIDS=64.3	VOID RATIO= .2099
1	61	2/ 2	H2O =45.9	POROSITY = .2428
			SOLIDS=54.1	VOID RATIO= .3208

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	62	1/ 2	TOC = 2.32
1	62	1/ 2	TOC = 3.15
2	61	2/ 2	TOC = 1.57

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	9	61	76 9 21	1330	122 21.49	47 35.40

```
DC DEPTH REPL      2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:TOTAL CARBON              WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1  61      2/ 2 TOC    = 3.11

TYPE:OIL AND GREASE            WITH UNITS: MG OIL-GR PER GM DRY MASS

2  62      1/ 2 O-G    =   .93
1  62      1/ 2 O-G    = 1.62
2  61      2/ 2 O-G    = 1.03
1  61      2/ 2 O-G    = 1.20
```

CRUISE-265 STATION- 9

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	10	61	76 9 21	1340	122 21.44	47 35.40

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	61	1/ 2	65.80	409.85	585.45	425.08	92.06	42.31	1620.50
1	61	1/ 2	39.77	387.21	881.73	925.36	211.58	84.28	2529.90
2	62	2/ 2	134.70	596.80	998.70	802.30	171.30	77.52	2781.00
1	62	2/ 2	44.81	332.78	882.82	1195.00	308.49	121.42	2885.30

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	61	1/ 2	H2O =36.4	POROSITY = .1773
			SOLIDS=63.6	VOID RATIO= .2155
1	61	1/ 2	H2O =48.4	POROSITY = .2614
			SOLIDS=51.6	VOID RATIO= .3540
2	62	2/ 2	H2O =43.0	POROSITY = .2218
			SOLIDS=57.0	VOID RATIO= .2850
1	62	2/ 2	H2O =51.3	POROSITY = .2848
			SOLIDS=48.7	VOID RATIO= .3983

.

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	61	1/ 2	TOC = 2.54
1	61	1/ 2	TOC = 2.70
2	62	2/ 2	TOC = 3.38

CRUISE-265 STATION- 10

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	10	62	76 9 21	1345	122 21.44	47 35.40

DC DEPTH REPL   2CB   3CB   4CB   5CB   6CB   7CB   TCB

TYPE:TOTAL CARBON   WITH UNITS:GM CARBON PER GM DRY SEDIMENT

```
1  62     2/ 2 TOC    = 3.05
```

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

```
2  61     1/ 2 O-G    = 1.92
1  61     1/ 2 O-G    = 1.61
2  62     2/ 2 O-G    = 2.82
1  62     2/ 2 O-G    = 1.72
```

CRUISE-265 STATION- 10

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	11	61	76 9 21	1352	122 21.40	47 35.40

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAM[illegible]CB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	61	1/ 2	58.47	347.30	604.40	4[illegible]	100.10	47.81	1645.00
1	61	1/ 2	49.43	573.08	1055.30	76[illegible]	153.51	76.74	2675.70
2	62	2/ 2	62.89	509.20	972.40	795.00	161.70	73.99	2575.00
1	62	1/ 2	.02	561.24	1728.40	2349.60	695.25	309.06	5643.50

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	61	1/ 2	H2O =43.6	POROSITY = .2255
			SOLIDS=56.4	VOID RATIO= .2912
1	61	1/ 2	H2O =53.6	POROSITY = .3032
			SOLIDS=46.4	VOID RATIO= .4352
2	62	2/ 2	H2O =45.8	POROSITY = .2419
			SOLIDS=54.2	VOID RATIO= .3191
1	62	1/ 2	H2O =51.7	POROSITY = .2880
			SOLIDS=48.3	VOID RATIO= .4044

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	61	1/ 2	TOC = 4.28
1	61	1/ 2	TOC = 4.25
2	62	2/ 2	TOC = 4.00

CRUISE-265 STATION- 11

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	11	62	76	9	21	1357	122 21.40	47 35.40

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

```
1  62     1/ 2 TOC    = 3.47
```

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
2  61     1/ 2 O-G    = 2.51
1  61     1/ 2 O-G    = 2.13
2  62     2/ 2 O-G    = 2.89
1  62     1/ 2 O-G    = 1.70
```

CRUISE-265 STATION- 11

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	12	66	76 9 21	1415	122 21.35	47 35.40

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	66	1/ 2	12.07	37.75	90.86	161.00	65.43	44.74	411.90
1	66	1/ 2	45.36	305.30	708.71	897.00	227.50	89.43	2273.30
2	67	2/ 2	27.96	148.57	236.75	247.61	85.22	55.24	801.35
1	67	2/ 2	70.12	439.46	2576.50	6174.00	1818.70	637.43	*716.00

TYPE:PCT H2O,SOLIDS,.... WITH UNITS:PERCENT; UNITLESS RATIC

DC	DEPTH	REPL		
2	66	1/ 2	H2O =36.0	POROSITY = .1751
			SOLIDS=64.0	VOID RATIO= .2123
1	66	1/ 2	H2O =50.4	POROSITY = .2774
			SOLIDS=49.6	VOID RATIO= .3838
2	67	2/ 2	H2O =39.4	POROSITY = .1971
			SOLIDS=60.6	VOID RATIO= .2455
1	67	2/ 2	H2O =49.5	POROSITY = .2699
			SOLIDS=50.5	VOID RATIO= .3697

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	66	1/ 2	TOC = 1.83
1	66	1/ 2	TOC = 2.19
2	67	2/ 2	TOC = 3.05

CPUISF-265 STATTON- 12

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	12	67	76 9 21	1420	122 21.35	47 35.40

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1 67 2/ 2 TOC = 1.83

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GP PER GM DRY MASS

2 66 1/ 2 O-G = 1.13
1 66 1/ 2 O-G = 1.03
2 67 2/ 2 O-G = .99
1 67 2/ 2 O-G = 1.11

CRUISE	STATION	WATER DEPTH	YR MCN DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	13	59	76 9 21	1430	122 21.49	47 35.37

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
2	59	2/ 2	.00*	5.40	29.00	63.85	24.49	15.05	137.80
1	59	1/ 2	.02	124.71	269.97	305.08	84.12	44.18	828.09
2	58	2/ 2	.01*	17.46	78.61	225.46	127.81	81.14	530.49
1	58	2/ 2	22.17	172.40	383.35	441.73	126.02	55.62	1201.30

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

2	59	2/ 2	H2O =28.2	POROSITY = .1290
			SOLIDS=71.8	VOID RATIO= .1481
1	59	1/ 2	H2O =45.1	POROSITY = .2364
			SOLIDS=54.9	VOID RATIO= .3097
2	58	2/ 2	H2O =25.8	POROSITY = .1161
			SOLIDS=74.2	VOID RATIO= .1313
1	58	2/ 2	H2O =49.4	POROSITY = .2691
			SOLIDS=50.6	VOID RATIO= .3681

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

2	59	2/ 2	TOC = 1.00
1	59	1/ 2	TOC = 2.46
2	58	2/ 2	TOC = 1.81

CRUISE-265 STATION- 13

```
------------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
  265     13           58       76   9  21      1447      122 21.49    47 35.37
------------------------------------------------------------------------------------------------

DC DEPTH REPL     2CB      3CB      4CB      5CB      6CB      7CB      TCB

TYPE:TOTAL CARBON              WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1  58      2/ 2 TOC    = 2.30

TYPE:OIL AND GREASE            WITH UNITS: MG OIL-GR PER GM DRY MASS

2  59      2/ 2 O-G    = 1.06
1  59      1/ 2 O-G    = 1.10
2  58      2/ 2 O-G    =  .94
1  58      2/ 2 O-G    =  .93
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	14	60	76 9 21	1500	122 21.44	47 35.37

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	60	1/ 2	14.37	38.03	163.63	251.48	109.14	64.31	690.96
1	60	1/ 2	45.96	319.61	685.92	815.69	208.32	80.88	2156.40
2	60	2/ 2	.01*	57.28	106.94	140.46	49.22	29.57	383.47
1	60	2/ 2	40.46	257.09	539.47	647.19	167.22	62.96	1714.40

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	60	1/ 2	H2O =38.4	POROSITY = .1903
			SOLIDS=61.6	VOID RATIO= .2350
1	60	1/ 2	H2O =48.7	POROSITY = .2636
			SOLIDS=51.3	VOID RATIO= .3580
2	60	2/ 2	H2O =32.2	POROSITY = .1522
			SOLIDS=67.8	VOID RATIO= .1796
1	60	2/ 2	H2O =45.7	POROSITY = .2414
			SOLIDS=54.2	VOID RATIO= .3182

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	60	1/ 2	TOC = 2.72
1	60	1/ 2	TOC = 3.52
2	60	2/ 2	TOC = 2.04

CRUISE-265 STATION- 14

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	14	60	76 9 21	1507	122 21.44	47 35.37

DC DEPTH REPL 2CR 3CB 4CB 5CB 6CR 7CB TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1 60 2/ 2 TOC = 2.83

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2	60	1/ 2 O-G	= 1.04
1	60	1/ 2 O-G	= 1.18
2	60	2/ 2 O-G	= .77
1	60	2/ 2 O-G	= .92

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	15	62	76 9 21	1516	122 21.40	47 35.37

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	62	1/ 2	26.48	25.30	64.79	133.59	76.77	57.52	384.44
1	62	1/ 2	40.10	264.43	506.83	543.72	137.45	58.16	1550.70
2	62	2/ 2	63.94	106.47	165.02	185.00	63.97	39.22	623.62
1	62	2/ 2	49.72	349.80	753.79	837.83	225.22	91.67	2308.00

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	62	1/ 2	H2O =34.6	POROSITY = .1663
			SOLIDS=65.4	VOID RATIO= .1995
1	62	1/ 2	H2O =48.3	POROSITY = .2608
			SOLIDS=51.7	VOID RATIO= .3528
2	62	2/ 2	H2O =34.6	POROSITY = .1663
			SOLIDS=65.4	VOID RATIO= .1995
1	62	2/ 2	H2O =50.2	POROSITY = .2753
			SOLIDS=49.8	VOID RATIO= .3799

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	62	1/ 2	TOC = 1.87
1	62	1/ 2	TOC = 2.90
2	62	2/ 2	TOC = 1.80

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	15	62	76 9 21	1545	122 21.40	47 35.37

DC DEPTH REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1 62 2/ 2 TOC = 2.91

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2 62 1/ 2 O-G = .57
1 62 1/ 2 O-G = .98
2 62 2/ 2 O-G = .80
1 62 2/ 2 O-G = .90

CRUISE-265 STATION- 15

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	16	66	76 9 21	1600	122 21.35	47 35.37

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	66	1/ 2	.01	18.78	98.76	243.51	115.20	72.12	548.39
1	66	1/ 2	32.93	253.39	531.90	548.02	130.14	57.78	1554.20
2	65	2/ 2	.01	70.04	161.74	237.98	92.38	55.30	617.44
1	65	2/ 2	.02	244.72	486.54	534.37	137.65	72.24	1475.50

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

2	66	1/ 2	H2O =39.9	POROSITY = .2000
			SOLIDS=60.1	VOID RATIO= .2500
1	66	1/ 2	H2O =48.8	POROSITY = .2643
			SOLIDS=51.2	VOID RATIO= .3592
2	65	2/ 2	H2O =43.0	POROSITY = .2215
			SOLIDS=57.0	VOID RATIO= .2845
1	65	2/ 2	H2O =50.4	POROSITY = .2773
			SOLIDS=49.6	VOID RATIO= .3837

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

2	66	1/ 2	TOC = 1.94
1	66	1/ 2	TOC = 3.32
2	65	2/ 2	TOC = 2.01

```
------------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
  265      16          65        76  9  21      1608      122 21.35    47 35.37
------------------------------------------------------------------------------------------------

DC DEPTH REPL      2CB      3CB      4CB      5CB      6CB      7CB      TCB

TYPE:TOTAL CARBON             WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1  65     2/ 2 TOC    = 3.19
.
TYPE:OIL AND GREASE           WITH UNITS: MG OIL-GR PER GM DRY MASS

2  66     1/ 2 O-G    =  .73
1  66     1/ 2 O-G    = 1.11
2  65     2/ 2 O-G    = 1.15
1  65     2/ 2 O-G    = 1.24
```

CRUISE-265 STATION- 16

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	17	60	76 9 21	1720	122 22.39	47 35.33

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
2	60	1/ 2	.00*	.84	5.24	15.13	7.96	5.66	34.84
1	60	1/ 2	.00*	.67	13.06	38.58	17.37	11.28	80.96
2	61	2/ 2	.00*	1.20	5.88	17.96	9.61	6.81	41.46
1	61	2/ 2	.00*	1.25	11.28	31.77	15.25	9.39	68.94

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	60	1/ 2	H2O =26.5	POROSITY = .1200
			SOLIDS=73.5	VOID RATIO= .1363
1	60	1/ 2	H2O =34.9	POROSITY = .1682
			SOLIDS=65.1	VOID RATIO= .2023
2	61	2/ 2	H2O =26.9	POROSITY = .1219
			SOLIDS=73.1	VOID RATIO= .1388
1	61	2/ 2	H2O =43.3	POROSITY = .2237
			SOLIDS=56.7	VOID RATIO= .2882

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	60	1/ 2	TOC = .84
1	60	1/ 2	TOC = 1.11
2	61	2/ 2	TOC = .99

CRUISE-265 STATION- 17

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	17	61	76 9 21	1730	122 22.39	47 35.33

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1	61	2/ 2 TOC	=	1.73

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2	60	1/ 2 O-G	=	.38
1	60	1/ 2 O-G	=	.30
2	61	2/ 2 O-G	=	.43
1	61	2/ 2 O-G	=	.33

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATTITUDE-N
265	18	70	76 9 21	1735	122 22.34	47 35.30

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS						
2	70	1/ 2	.00*	3.07	19.04	45.05	21.65	14.00	102.82
1	70	1/ 2	.00*	2.49	19.63	54.19	24.54	19.26	120.13
2	63	2/ 2	.00*	.27	2.69	10.25	5.78	4.52	23.51
1	63	2/ 2	.00*	.71	11.61	34.62	16.86	11.46	75.28

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	70	1/ 2	H2O =34.2	POROSITY = .1642
			SOLIDS=65.8	VOID RATIO= .1965
1	70	1/ 2	H2O =51.2	POROSITY = .2835
			SOLIDS=48.8	VOID RATIO= .3956
2	63	2/ 2	H2O =26.1	POROSITY = .1176
			SOLIDS=73.9	VOID RATIO= .1332
1	63	2/ 2	H2O =38.0	POROSITY = .1876
			SOLIDS=62.0	VOID RATIO= .2309

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	70	1/ 2	TOC = 1.92
1	70	1/ 2	TOC = 1.61
2	63	2/ 2	TOC = .71

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	18	63	76 9 21	1741	122 22.34	47 35.30

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1 63 2/ 2 TOC = 1.13

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2 70 1/ 2 O-G = .60
1 70 1/ 2 O-G = .45
2 63 2/ 2 O-G = .27
1 63 2/ 2 O-G = .39

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	19	56	76 9 21	1630	122 20.38	47 36.00

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	56	1/ 2	.01*	13.14	65.86	232.59	125.26	90.67	527.52
1	56	1/ 2	.00*	8.50	60.01	202.80	111.30	83.60	466.30
2	54	2/ 2	1.97	8.15	43.33	137.27	76.02	56.10	322.84
1	54	2/ 2	.01*	10.43	74.42	237.57	118.01	84.06	524.50

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

2	56	1/ 2	H2O =44.3	POROSITY = .2311
			SOLIDS=55.7	VOID RATIO= .3005
1	56	1/ 2	H2O =60.4	POROSITY = .3651
			SOLIDS=39.6	VOID RATIO= .5749
2	54	2/ 2	H2O =39.6	POROSITY = .1983
			SOLIDS=60.4	VOID RATIO= .2474
1	54	2/ 2	H2O =51.0	POROSITY = .2821
			SOLIDS=49.0	VOID RATIO= .3929

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

2	56	1/ 2	TOC = 1.40
1	56	1/ 2	TOC = 2.33
2	54	2/ 2	TOC = 1.54

CRUISE-265 STATION- 19

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	19	54	76 9 21	1636	122 20.38	47 36.00

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1 54 2/ 2 TCC = 1.57

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2 56 1/ 2 O-G = 2.21
1 56 1/ 2 O-G = 1.82
2 54 2/ 2 O-G = 1.49
1 54 2/ 2 O-G = 1.39

CPUISE-265 STATION- 19

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	20	64	76 9 21	1655	122 20.38	47 35.58

DC	DEPTH	PERL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
2	64	1/ 2	.01*	5.99	21.87	85.63	47.54	38.98	200.02
1	64	1/ 2	.00*	6.92	55.46	195.10	109.70	85.61	452.80
2	63	2/ 2	6.54	12.89	64.53	198.12	97.70	69.00	448.79
1	63	2/ 2	.00*	7.02	43.74	158.60	87.21	63.80	360.40

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

2	64	1/ 2	H2O =38.8	POROSITY = .1928
			SOLIDS=61.2	VOID RATIO= .2388
1	64	1/ 2	H2O =52.9	POROSITY = .2980
			SOLIDS=47.1	VOID RATIO= .4245
2	63	2/ 2	H2O =42.7	POROSITY = .2197
			SOLIDS=57.3	VOID RATIO= .2816
1	63	2/ 2	H2O =48.0	POROSITY = .2582
			SOLIDS=52.0	VOID RATIO= .3481

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

2	64	1/ 2	TOC = 1.13
1	64	1/ 2	TOC = 1.75
2	63	2/ 2	TOC = 1.39

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
265	20	63	76 9 21	1700	122 20.38	47 35.58

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

```
1  63     2/ 2 TOC    = 2.57
```

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
2  64     1/ 2 O-G    = 2.35
1  64     1/ 2 O-G    = 1.83
2  63     2/ 2 O-G    = 1.89
1  63     2/ 2 O-G    = 1.74
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
266	6	55	76 9 22	1046	122 21.44	47 35.43

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
3	55	1/ 2	.00*	.08	.32	.26	.02	.00*	.68
2	46	1/ 2	.00*	.23	.38	.27	.04	.01*	.93
1	1	1/ 2	.00*	.42	.45	.23	.02	.00*	1.12
3	57	2/ 2	.00*	.29	.83	1.02	.16	.08	2.38
2	48	2/ 2	.00*	.52	.94	1.19	.15	.05	2.85
1	1	2/ 2	.00*	.48	1.65	2.83	.87	.13	5.96
TYPE: SPM				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
3	55	1/ 2	.00*	.04	.06	.05	.01	.01	.17
2	46	1/ 2	.00*	.12	.16	.17	.04	.02	.52
1	1	1/ 2	.00*	.15	.21	.39	.15	.02	.91
3	57	2/ 2	.00*	.16	.24	.32	.07	.02	.81
2	48	2/ 2	.00*	.21	.23	.21	.04	.02	.72
1	1	2/ 2	.00*	.24	.30	.30	.05	.03	.92

CRUISE-266 STATION- 6

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
266	10	57	76	9	22	1200	122 21.44	47 35.40

TYPE: WATER — WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
3	57	1/ 2	.00*	.48	1.19	1.20	.24	.02	3.13
2	48	1/ 2	.00*	.33	.42	.88	.02	.00*	1.65
1	1	1/ 2	.00*	.18	.39	.53	.06	.04	1.20
3	60	2/ 2	.00*	.50	1.21	1.38	.15	.02	3.25
2	51	2/ 2	.00*	.25	.41	.38	.05	.05	1.14
1	1	2/ 2	.00*	.51	.85	1.02	.43	.53	3.35

TYPE: SPM — WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
3	57	1/ 2	.00*	.11	.17	.26	.09	.02	.66
2	49	1/ 2	.00*	.05	.09	.14	.02	.01	.31
1	1	1/ 2	.00*	.15	.13	.24	.07	.01	.59
3	60	2/ 2	.00*	.02	.17	.23	.08	.02	.51
2	51	2/ 2	.00*	.01	.08	.15	.02	.02	.28
1	1	2/ 2	.00*	.01	.18	.32	.05	.01	.58

CRUISE-266 STATION- 10

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
266	17	1	76	9	22	900	122 22.39	47 35.33

TYPE: WATER — WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	1	1/ 2	.00*	.09	.51	.61	.08	.02	1.30
3	47	1/ 2	.00*	.37	.42	.43	.11	.01*	1.35
2	38	1/ 2	.00*	.26	.27	.19	.05	.00*	.77
3	50	2/ 2	.00*	.02	1.11	.92	.11	.00*	2.16
2	41	2/ 2	.00*	.21	.29	.36	.08	.00*	.94
1	1	2/ 2	.00*	.30	.83	.98	.18	.00*	2.29

TYPE: SPM — WITH UNITS:PICOGRAMS NCB PER GM ML WATER

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	1	1/ 2	.00*	.11	.18	.26	.11	.06	.72
3	47	1/ 2	.00*	.14	.20	.28	.13	.09	.84
2	38	1/ 2	.00*	.06	.12	.16	.07	.05	.47
3	50	2/ 2	.00*	.06	.13	.14	.06	.07	.46
2	41	2/ 2	.00*	.05	.09	.13	.07	.06	.39
1	1	2/ 2	.00*	.09	.18	.23	.06	.04	.60

CRUISE-266 STATION- 17

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
266	19	53	76 9 22	1357	122 20.38	47 36.00

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
3	53	1/ 2	.00*	.38	.64	1.25	.29	.14	2.70
2	44	1/ 2	.00*	.15	.40	.39	.07	.00*	1.01
1	1	1/ 2	.00*	.56	.93	1.07	.28	.07	2.90
2	46	2/ 2	.00*	.32	.60	.68	.20	.00*	1.81
1	1	2/ 2	.00*	.37	.96	1.46	.47	.16	3.43
3	55	2/ 2	.00*	.42	.41	.67	.15	.00*	1.65
TYPE: SPM				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
3	53	1/ 2	.00*	.36	.74	1.23	.77	.52	3.63
2	44	1/ 2	.00*	.50	.41	.32	.09	.03	1.35
1	1	1/ 2	.00*	.73	.76	.54	.18	.21	2.43
2	46	2/ 2	.00*	.39	.36	.28	.09	.06	1.17
1	1	2/ 2	.00*	.08	.13	.17	.08	.05	.52
3	55	2/ 2	.00*	.46	.42	.30	.10	.06	1.34

CRUISE-266 STATION- 19

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATTITUDE-N
266	44	32	76 9 22	1430	122 21.34	47 35.24

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
2	32	1/ 2	.00*	.23	.25	.36	.05	.00*	.89
3	43	1/ 2	.00*	.29	.36	.43	.09	.00*	1.17
1	1	1/ 2	.00*	.18	.91	.82	.11	.03	2.05
3	41	2/ 2	.00*	.29	.44	.60	.09	.00*	1.42
2	32	2/ 2	.00*	.37	.44	.36	.08	.02	1.27
1	1	2/ 2	.00*	.14	.59	.85	.05	.00*	1.62
TYPE: SPM				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
2	34	1/ 2	.00*	.26	.21	.16	.08	.13	.84
3	43	1/ 2	.00*	.32	.25	.19	.09	.16	1.01
1	1	1/ 2	.00*	.23	.32	.37	.14	.09	1.16
3	41	2/ 2	.00*	.48	.31	.34	.19	.22	1.55
2	34	2/ 2	.00*	.11	.22	.25	.08	.05	.70
1	1	2/ 2	.00*	.30	.18	.26	.13	.08	.96

CRUISE-266 STATION- 44

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	1	64	76 12 7	1028	122 21.49	47 35.46

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	64	1/ 2	52.38	316.25	683.70	738.56	184.66	78.87	2054.40
2	64	1/ 2	.01	16.66	54.11	115.15	64.10	43.39	293.42
1	64	2/ 2	36.61	275.65	593.61	606.50	134.54	48.63	1695.50
2	64	2/ 2	.01	128.64	254.47	307.33	100.64	61.61	852.70

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
1	64	1/ 2	H2O =47.3	POROSITY = .2528
			SOLIDS=52.7	VOID RATIO= .3384
2	64	1/ 2	H2O =35.6	POROSITY = .1724
			SOLIDS=64.4	VOID RATIO= .2083
1	64	2/ 2	H2O =52.9	POROSITY = .2978
			SOLIDS=47.1	VOID RATIO= .4241
2	64	2/ 2	H2O =42.7	POROSITY = .2193
			SOLIDS=57.3	VOID RATIO= .2809

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
1	64	1/ 2	TOC = 3.38
2	64	1/ 2	TOC = 1.84
1	64	2/ 2	TOC = 3.12

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	1	64	76 12 7	1042	122 21.49	47 35.46

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

```
2  64      2/ 2 TOC    = 2.39
```

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
1  64      1/ 2 O-G    = 1.38
2  64      1/ 2 O-G    =  .95
1  64      2/ 2 O-G    = 1.33
2  64      2/ 2 O-G    = 1.43
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	2	64	76 12 7	1056	122 21.44	47 35.46

DC	DEPTH	PEPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	PEPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	64	1/ 2	11.86	198.33	346.93	256.53	51.74	30.68	896.07
2	64	2/ 2	9.39	30.89	69.34	130.14	55.19	38.69	333.62
1	64	2/ 2	.02	141.35	261.41	227.85	56.42	24.34	711.39
2	64	2/ 2	10.30	65.05	172.09	251.96	89.06	54.36	642.81

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	64	1/ 2	H2O =47.8	POROSITY = .2566
			SOLIDS=52.2	VOID RATIO= .3452
2	64	2/ 2	H2O =35.6	POROSITY = .1727
			SOLIDS=64.4	VOID RATIO= .2087
1	64	2/ 2	H2O =43.6	POROSITY = .2261
			SOLIDS=56.4	VOID RATIO= .2921
2	64	2/ 2	H2O =37.8	POROSITY = .1864
			SOLIDS=62.2	VOID RATIO= .2291

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1	64	1/ 2	TOC = 2.72
2	64	2/ 2	TOC = 1.47
1	64	2/ 2	TOC = 2.43

```
-------------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATTITUDE-N
  342      2           64       76 12   7       1107     122 21.44    47 35.46
-------------------------------------------------------------------------------------------------

DC DEPTH REPL     2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:TOTAL CARBON            WITH UNITS:GM CARBON PER GM DRY SEDIMENT

2  64      2/ 2 TOC   = 1.25

TYPE:OIL AND GREASE          WITH UNITS: MG OIL-GR PER GM DRY MASS

1  64      1/ 2 O-G   = 1.00
2  64      2/ 2 O-G   =  .77
1  64      2/ 2 O-G   =  .94
2  64      2/ 2 O-G   =  .81
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	3	67	76 12 7	1117	122 21.40	47 35.46

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS						
1	67	1/ 2	21.83	211.01	352.49	333.96	91.60	35.04	1045.90
2	67	1/ 2	4.12	61.39	136.42	188.79	65.80	42.47	499.00
1	71	2/ 2	29.98	259.89	527.22	470.86	114.04	57.02	1459.00
2	71	2/ 2	1.80	25.62	98.11	153.32	86.61	75.81	441.27

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	67	1/ 2	H2O =49.2	POROSITY = .2674
			SOLIDS=50.8	VOID RATIO= .3649
2	67	1/ 2	H2O =34.6	POROSITY = .1664
			SOLIDS=65.4	VOID RATIO= .1997
1	71	2/ 2	H2O =48.4	POROSITY = .2614
			SOLIDS=51.6	VOID RATIO= .3540
2	71	2/ 2	H2O =37.6	POROSITY = .1852
			SOLIDS=62.4	VOID RATIO= .2273

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1	67	1/ 2	TOC = 3.20
2	67	1/ 2	TOC = 1.41
1	71	2/ 2	TOC = 2.77

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	3	71	76 12 7	1128	122 21.40	47 35.46

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCP

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

2 71 2/ 2 TOC = 1.44

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	67	1/ 2	O-G	= 1.06
2	67	1/ 2	O-G	= .66
1	71	2/ 2	O-G	= 1.26
2	71	2/ 2	O-G	= 1.14

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	4	71	76 12 7	1137	122 21.35	47 35.46

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	71	1/ 2	36.00	281.05	547.48	542.99	124.31	52.05	1583.90
2	71	1/ 2	2.23	39.20	124.80	252.15	179.21	168.27	765.85
1	70	2/ 2	22.47	238.25	448.63	425.04	119.13	41.41	1294.90
2	70	2/ 2	14.04	92.71	200.32	282.43	102.92	56.40	748.82

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	71	1/ 2	H2O =52.0	POROSITY = .2904
.			SOLIDS=48.0	VOID RATIO= .4092
2	71	1/ 2	H2O =42.3	POROSITY = .2169
			SOLIDS=57.7	VOID RATIO= .2769
1	70	2/ 2	H2O =50.5	POROSITY = .2777
			SOLIDS=49.5	VOID RATIO= .3844
2	70	2/ 2	H2O =39.9	POROSITY = .2006
			SOLIDS=60.1	VOID RATIO= .2510

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1	71	1/ 2	TOC = 2.99
2	71	1/ 2	TOC = 1.52
1	70	2/ 2	TOC = 2.96

CRUISE	STATION	WATER DEPTH	YR	MON	DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	4	70	76	12	7	1150	122 21.35	47 35.46

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

2	70	2/ 2	TOC	= 2.14

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	71	1/ 2	O-G	= 1.33
2	71	1/ 2	O-G	= 1.08
1	70	2/ 2	O-G	= 1.25
2	70	2/ 2	O-G	= 1.03

CRUISE-342 STATION- 4

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	5	64	76 12 7	1210	122 21.49	47 35.43

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	64	1/ 2	61.21	442.60	842.10	781.70	177.70	79.27	2385.00
2	64	1/ 2	44.23	250.20	397.22	279.33	63.77	33.86	1068.60
1	64	2/ 2	73.38	438.77	971.53	999.07	214.21	96.39	2793.40
2	64	2/ 2	404.51	746.41	1394.90	1058.40	213.88	105.45	3923.50

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
1	64	1/ 2	H2O =45.3	POROSITY = .2380
			SOLIDS=54.7	VOID RATIO= .3124
2	64	1/ 2	H2O =38.4	POROSITY = .1903
			SOLIDS=61.6	VOID RATIO= .2350
1	64	2/ 2	H2O =50.1	POROSITY = .2747
			SOLIDS=49.9	VOID RATIO= .3787
2	64	2/ 2	H2O =47.7	POROSITY = .2561
			SOLIDS=52.3	VOID RATIO= .3443

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
1	64	1/ 2	TOC = 4.21
2	64	1/ 2	TOC = 3.33
1	64	2/ 2	TOC = 3.65

CRUISE-342 STATION- 5

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	5	64	76 12 7	1343	122 21.49	47 35.43

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCP

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

2 64 2/ 2 TOC = 4.95

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1 64 1/ 2 O-G = 2.62
2 64 1/ 2 O-G = 1.41
1 64 2/ 2 O-G = 2.00
2 64 2/ 2 O-G = 2.80

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	6	64	76 12 7	1354	122 21.44	47 35.43

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS						
1	64	1/ 2	80.54	624.51	1842.70	2612.70	749.84	284.47	6194.80
2	64	1/ 2	79.69	501.03	946.39	721.06	161.42	82.86	2492.50
1	72	2/ 2	72.75	379.43	684.39	702.20	125.16	65.13	2029.10
2	72	2/ 2	36.04	167.03	251.40	170.80	35.20	19.18	679.63

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	64	1/ 2	H2O =51.7	POROSITY = .2875
			SOLIDS=48.3	VOID RATIO= .4036
2	64	1/ 2	H2O =45.8	POROSITY = .2421
			SOLIDS=54.2	VOID RATIO= .3195
1	72	2/ 2	H2O =46.8	POROSITY = .2490
			SOLIDS=53.2	VOID RATIO= .3316
2	72	2/ 2	H2O =35.8	POROSITY = .1737
			SOLIDS=64.2	VOID RATIO= .2102

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1	64	1/ 2	TOC = 3.57
2	64	1/ 2	TOC = 3.68
1	72	2/ 2	TOC = 3.37

```
------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
  342      6          72        76 12   7       1410     122 21.44    47 35.43
------------------------------------------------------------------------------------------

DC DEPTH REPL     2CB      3CB      4CB      5CB      6CB      7CB      TCB

TYPE:TOTAL CARBON           WITH UNITS:GM CARBON PER GM DRY SEDIMENT

2  72     2/ 2 TOC    = 2.17

TYPE:OIL AND GREASE         WITH UNITS: MG OIL-GR PER GM DRY MASS

1  64     1/ 2 O-G    = 2.09
2  64     1/ 2 O-G    = 2.39
1  72     2/ 2 O-G    = 1.20
2  72     2/ 2 O-G    = 1.35
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
• 342	7	70	76 12 7	1440	122 21.40	47 35.43

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	70	1/ 2	75.09	366.27	774.67	1097.30	223.10	80.02	2616.50
2	70	1/ 2	63.28	369.83	813.49	1022.90	296.07	123.02	2688.60
1	70	2/ 2	48.52	294.98	603.79	664.91	168.98	65.51	1846.70
2	70	2/ 2	14.78	108.09	202.68	190.85	59.30	41.09	616.79

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
1	70	1/ 2	H2O =46.5	POROSITY = .2471
			SOLIDS=53.5	VOID RATIO= .3282
2	70	1/ 2	H2O =38.7	POROSITY = .1927
			SOLIDS=61.3	VOID RATIO= .2387
1	70	2/ 2	H2O =44.4	POROSITY = .2315
			SOLIDS=55.6	VOID RATIO= .3012
2	70	2/ 2	H2O =39.9	POROSITY = .2005
			SOLIDS=60.1	VOID RATIO= .2507

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
1	70	1/ 2	TOC = 2.86
2	70	1/ 2	TOC = 2.53
1	70	2/ 2	TOC = 2.30

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATTITUDE-N
342	7	70	76 12 7	1452	122 21.40	47 35.43

DC DEPTH REPL   2CB   3CB   4CB   5CB   6CB   7CB   TCB

TYPE:TOTAL CARBON   WITH UNITS:GM CARBON PER GM DRY SEDIMENT

2 70   2/ 2 TOC = 2.16

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

1	70	1/ 2 O-G	=	.00
2	70	1/ 2 O-G	=	1.42
1	70	2/ 2 O-G	=	1.01
2	70	2/ 2 O-G	=	.98

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	8	70	76 12 7	1517	122 21.35	47 35.43

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCP
1	70	1/ 2	66.47	302.50	669.46	687.66	119.33	69.47	1914.90
2	70	1/ 2	4.86	49.92	101.41	131.30	48.02	32.08	367.61
1	70	2/ 2	51.26	291.66	550.28	517.88	128.08	55.28	1594.40
2	70	2/ 2	14.30	97.17	161.97	194.68	97.16	76.64	641.94

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
1	70	1/ 2	H2O =48.5	POROSITY = .2622
			SOLIDS=51.5	VOID RATIO= .3553
2	70	1/ 2	H2O =37.5	POROSITY = .1846
			SOLIDS=62.5	VOID RATIO= .2264
1	70	2/ 2	H2O =45.0	POROSITY = .2356
			SOLIDS=55.0	VOID RATIO= .3092
2	70	2/ 2	H2O =40.6	POROSITY = .2050
			SOLIDS=59.4	VOID RATIO= .2579

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
1	70	1/ 2	TOC = 2.69
2	70	1/ 2	TOC = 1.47
1	70	2/ 2	TOC = 1.16

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	8	70	76 12 7	1600	122 21.35	47 35.43

DC DEPTH REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

• 2	70	2/ 2 TOC	=	2.07

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	70	1/ 2 O-G	=	.96
2	70	1/ 2 O-G	=	.90
1	70	2/ 2 O-G	=	1.00
2	70	2/ 2 O-G	=	1.08

CRUISE-342 STATION- 8

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	9	51	76 12 7	1615	122 21.49	47 35.40

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	51	1/ 2	39.88	120.66	216.03	213.87	73.32	47.59	711.35
1	51	1/ 2	73.44	424.97	864.88	756.45	140.66	80.06	2340.50
2	61	2/ 2	67.45	354.98	432.13	293.54	61.39	30.98	1240.50
1	61	2/ 2	54.94	244.41	587.76	778.25	223.81	82.62	1971.80

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	51	1/ 2	H2O =37.3	POROSITY = .1833
			SOLIDS=62.7	VOID RATIO= .2244
1	51	1/ 2	H2O =47.8	POROSITY = .2570
			SOLIDS=52.2	VOID RATIO= .3459
2	61	2/ 2	H2O =38.8	POROSITY = .1934
			SOLIDS=61.2	VOID RATIO= .2397
1	61	2/ 2	H2O =47.0	POROSITY = .2507
			SOLIDS=53.0	VOID RATIO= .3346

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	51	1/ 2	TOC = 2.03
1	51	1/ 2	TOC = 2.81
2	61	2/ 2	TOC = 3.71

CRUISE-342 STATION- 9

```
--------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   342      9          61       76 12   7       1618     122 21.49    47 35.40
--------------------------------------------------------------------------------------------

DC DEPTH REPL     2CB      3CB      4CB      5CB      6CB      7CB      TCB

TYPE:TOTAL CARBON           WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1  61     2/ 2 TOC    = 2.28

TYPE:OIL AND GREASE         WITH UNITS: MG OIL-GR PER GM DRY MASS

2  51     1/ 2 O-G    = 1.14
1  51     1/ 2 O-G    = 1.37
2  61     2/ 2 O-G    = 1.91
1  61     2/ 2 O-G    =  .90
```

CRUISE-342 STATION- 9

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	10	65	76 12 7	1630	122 21.44	47 35.40

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	65	1/ 2	57.90	451.20	826.43	626.97	135.73	64.74	2163.00
1	65	1/ 2	44.87	390.80	1746.10	3167.00	931.68	321.32	6601.90
2	62	2/ 2	65.89	498.26	838.29	597.36	124.12	60.66	2184.60
1	62	2/ 2	51.96	329.50	792.01	935.25	253.50	94.09	2456.30

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	65	1/ 2	H2O =39.3	POROSITY = .1963
			SOLIDS=60.7	VOID RATIO= .2443
1	65	1/ 2	H2O =55.5	POROSITY = .3197
			SOLIDS=44.5	VOID RATIO= .4700
2	62	2/ 2	H2O =44.8	POROSITY = .2346
			SOLIDS=55.2	VOID RATIO= .3065
1	62	2/ 2	H2O =51.2	POROSITY = .2837
			SOLIDS=48.8	VOID RATIO= .3961

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	65	1/ 2	TOC = 4.99
1	65	1/ 2	TOC = 3.88
2	62	2/ 2	TOC = 5.07

```
-------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
  342      10          62        76 12   7       1638     122 21.44    47 35.40
-------------------------------------------------------------------------------------------

DC DEPTH REPL      2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:TOTAL CARBON              WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1  62      2/ 2 TOC    = 3.37

TYPE:OIL AND GREASE            WITH UNITS: MG OIL-GR PER GM DRY MASS

2  65      1/ 2 O-G    = 3.17
1  65      1/ 2 O-G    = 2.37
2  62      2/ 2 O-G    = 2.67
1  62      2/ 2 O-G    = 1.55
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATTITUDE-N
342	11	69	76 12 7	1646	122 21.40	47 35.40

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	69	1/ 2	71.31	494.83	1251.00	1737.50	774.96	438.98	4768.60
2	69	1/ 2	53.71	357.97	670.09	517.09	109.65	48.99	1757.50
1	68	2/ 2	57.26	227.28	357.86	279.73	66.24	32.03	1020.40
2	68	2/ 2	10.30	126.30	205.82	105.46	31.48	19.91	499.26

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
1	69	1/ 2	H2O =54.1	POROSITY = .3076
			SOLIDS=45.9	VOID RATIO= .4443
2	69	1/ 2	H2O =48.3	POROSITY = .2604
			SOLIDS=51.7	VOID RATIO= .3521
1	68	2/ 2	H2O =48.5	POROSITY = .2621
			SOLIDS=51.5	VOID RATIO= .3553
2	68	2/ 2	H2O =33.2	POROSITY = .1579
			SOLIDS=66.8	VOID RATIO= .1876

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
1	69	1/ 2	TOC = 3.34
2	69	1/ 2	TOC = 3.61
1	68	2/ 2	TOC = 3.03

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	11	68	76 12 7	1652	122 21.40	47 35.40

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

```
2  68     2/ 2 TOC    = 1.91
```

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
1  69     1/ 2 O-G    = 1.88
2  69     1/ 2 O-G    = 2.83
1  68     2/ 2 O-G    = 1.04
2  68     2/ 2 O-G    =  .38
```

CRUISE-342 STATION- 11

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	12	68	76 12 7	1700	122 21.35	47 35.40

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	68	1/ 2	69.37	161.53	745.18	827.20	167.79	81.94	2053.00
2	68	1/ 2	53.05	166.69	255.39	240.74	76.51	45.48	837.86
1	68	2/ 2	82.26	316.15	647.43	687.76	104.14	75.33	1913.10
2	68	2/ 2	34.42	121.29	208.01	239.71	85.78	54.37	743.59

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

```
1  68   1/ 2 H2O    =58.1                 POROSITY   = .3432
             SOLIDS=41.9                  VOID RATIO= .5225
2  68   1/ 2 H2O    =39.0                 POROSITY   = .1941
             SOLIDS=61.0                  VOID RATIO= .2409
1  68   2/ 2 H2O    =44.7                 POROSITY   = .2339
             SOLIDS=55.3                  VOID RATIO= .3053
2  68   2/ 2 H2O    =38.1                 POROSITY   = .1882
             SOLIDS=61.9                  VOID RATIO= .2318
```

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

```
1  68   1/ 2 TOC    = 2.41
2  68   1/ 2 TOC    = 1.61
1  68   2/ 2 TOC    = 2.71
```

CRUISE-342 STATION- 12

```
--------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
  342      12          68       76 12   7       1715      122 21.35    47 35.40
--------------------------------------------------------------------------------------------

DC DEPTH REPL      2CB        3CB        4CB        5CB        6CB        7CB        TCB

TYPE:TOTAL CARBON             WITH UNITS:GM CARBON PER GM DRY SEDIMENT

2  68     2/ 2 TOC    = 1.91

TYPE:OIL AND GREASE           WITH UNITS: MG OIL-GR PER GM DRY MASS

1  68     1/ 2 O-G    = 1.05
2  68     1/ 2 O-G    = 1.06
1  68     2/ 2 O-G    =  .98
2  68     2/ 2 O-G    =  .98
```

CRUISE-342 STATION- 12

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	13	59	76 12 7	1730	122 21.49	47 35.37

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
1	59	1/ 2	24.61	226.20	424.80	419.00	106.60	39.08	1240.00
2	59	1/ 2	.01	47.54	122.30	244.63	147.43	141.73	703.64
1	61	2/ 2	35.01	330.40	616.40	569.40	120.20	42.93	1714.00
2	61	2/ 2	39.97	181.61	301.16	278.84	77.98	39.02	918.58

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
1	59	1/ 2	H2O =47.8	POROSITY = .2568
			SOLIDS=52.2	VOID RATIO= .3456
2	59	1/ 2	H2O =29.1	POROSITY = .1342
			SOLIDS=70.9	VOID RATIO= .1550
1	61	2/ 2	H2O =48.5	POROSITY = .2625
			SOLIDS=51.5	VOID RATIO= .3559
2	61	2/ 2	H2O =41.8	POROSITY = .2135
			SOLIDS=58.2	VOID RATIO= .2715

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
1	59	1/ 2	TOC = 2.90
2	59	1/ 2	TOC = 1.13
1	61	2/ 2	TOC = 3.29

CRUISE-342 STATION- 13

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	13	61	76 12 7	1745	122 21.49	47 35.37

DC DEPTH REPL   2CB   3CB   4CB   5CB   6CB   7CB   TCB

TYPE:TOTAL CARBON   WITH UNITS:GM CARBON PER GM DRY SEDIMENT

2	61	2/ 2 TOC	= 2.39

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

1	59	1/ 2 O-G	= 1.10
2	59	1/ 2 O-G	= .65
1	61	2/ 2 O-G	= 1.16
2	61	2/ 2 O-G	= 1.32

CRUISE-342 STATION- 13

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	14	51	76 12 7	1755	122 21.44	47 35.37

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT			WITH UNITS:NANOGRAMS NCB PER GM DRY MASS						
1	51	1/ 2	17.54	213.13	481.14	529.93	127.16	45.96	1414.90
2	51	1/ 2	43.20	168.82	309.58	316.42	87.66	45.97	971.66
1	58	2/ 2	.02	137.17	318.09	344.16	90.72	52.04	942.19
2	58	2/ 2	.02	14.84	78.44	217.32	121.03	76.71	508.35

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	51	1/ 2	H2O =52.3	POROSITY = .2924
			SOLIDS=47.7	VOID RATIO= .4132
2	51	1/ 2	H2O =41.5	POROSITY = .2115
			SOLIDS=58.5	VOID RATIO= .2682
1	58	2/ 2	H2O =50.6	POROSITY = .2791
			SOLIDS=49.4	VOID RATIO= .3872
2	58	2/ 2	H2O =36.9	POROSITY = .1806
			SOLIDS=63.1	VOID RATIO= .2204

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1	51	1/ 2	TOC = 2.06
2	51	1/ 2	TOC = 2.30
1	58	2/ 2	TOC = 2.75

CRUISE-342 STATION- 14

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	14	58	76 12 7	1816	122 21.44	47 35.37

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

```
2  58      2/ 2 TOC    = 1.32
```

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
1  51      1/ 2 O-G    = 2.18
2  51      1/ 2 O-G    =  .91
1  58      2/ 2 O-G    =  .96
2  58      2/ 2 O-G    =  .74
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	15	63	76 12 7	1830	122 21.40	47 35.37

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	63	1/ 2	57.57	332.44	545.45	396.58	86.23	39.48	1457.80
1	63	1/ 2	33.67	202.40	459.80	550.70	118.50	43.42	1409.00
2	68	2/ 2	71.38	397.01	442.97	277.45	65.94	42.00	1296.70
1	68	2/ 2	23.16	230.40	633.00	947.20	283.60	125.60	2243.00

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	63	1/ 2	H2O =41.9	POROSITY = .2138
			SOLIDS=58.1	VOID RATIO= .2720
1	63	1/ 2	H2O =46.2	POROSITY = .2449
			SOLIDS=53.8	VOID RATIO= .3243
2	68	2/ 2	H2O =39.1	POROSITY = .1952
			SOLIDS=60.9	VOID RATIO= .2426
1	68	2/ 2	H2O =46.7	POROSITY = .2481
			SOLIDS=53.3	VOID RATIO= .3300

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	63	1/ 2	TOC = 3.38
1	63	1/ 2	TOC = 2.34
2	68	2/ 2	TOC = 3.68

CRUISE-342 STATION- 15

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	15	68	76 12 7	1844	122 21.40	47 35.37

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1 68 2/ 2 TOC = 3.24

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

2 63 1/ 2 O-G = 1.42
1 63 1/ 2 O-G = 1.17
2 68 2/ 2 O-G = 1.53
1 68 2/ 2 O-G = 1.38

CRUISE-342 STATION- 15

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	16	64	76 12 7	1900	122 21.35	47 35.37

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	64	1/ 2	17.51	86.56	169.42	228.23	86.43	49.88	638.02
1	64	1/ 2	31.79	255.10	508.90	537.60	129.80	60.67	1524.00
2	66	2/ 2	13.14	75.55	142.29	184.47	82.24	68.29	565.99
1	66	2/ 2	3.02	256.70	509.10	522.50	131.10	51.77	1501.00

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

DC	DEPTH	REPL		
2	64	1/ 2	H2O =38.6	POROSITY = .1920
			SOLIDS=61.4	VOID RATIO= .2377
1	64	1/ 2	H2O =48.0	POROSITY = .2581
			SOLIDS=52.0	VOID RATIO= .3478
2	66	2/ 2	H2O =39.3	POROSITY = .1962
			SOLIDS=60.7	VOID RATIO= .2441
1	66	2/ 2	H2O =50.9	POROSITY = .2809
			SOLIDS=49.1	VOID RATIO= .3907

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

DC	DEPTH	REPL	
2	64	1/ 2	TOC = 1.87
1	64	1/ 2	TOC = 3.04
2	66	2/ 2	TOC = 1.85

CRUISE-342 STATION- 16

```
------------------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
   342     16            66     76 12   7        1905     122 21.35    47 35.37
------------------------------------------------------------------------------------------

DC DEPTH REPL      2CB        3CB        4CB        5CB        6CB        7CB        TCB

TYPE:TOTAL CARBON             WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1  66      2/ 2 TOC    = 2.50

TYPE:OIL AND GREASE           WITH UNITS: MG OIL-GR PER GM DRY MASS

2  64      1/ 2 O-G    = 1.01
1  64      1/ 2 O-G    = 1.48
2  66      2/ 2 O-G    =  .93
1  66      2/ 2 O-G    = 1.42
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	17	77	76 12 7	2005	122 22.39	47 35.33

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
2	77	1/ 2	.01*	.01*	1.21	5.26	4.44	4.79	15.73
1	77	1/ 2	.00*	1.41	15.05	45.34	22.64	16.75	101.20
2	70	2/ 2	.01*	.01*	2.30	7.92	4.00	3.27	17.50
1	70	2/ 2	.01*	.66	12.57	49.89	38.77	34.53	136.42

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

2	77	1/ 2	H2O =33.4	POROSITY = .1593
			SOLIDS=66.6	VOID RATIO= .1894
1	77	1/ 2	H2O =37.8	POROSITY = .1863
			SOLIDS=62.2	VOID RATIO= .2290
2	70	2/ 2	H2O =26.2	POROSITY = .1179
			SOLIDS=73.8	VOID RATIO= .1337
1	70	2/ 2	H2O =33.4	POROSITY = .1593
			SOLIDS=66.6	VOID RATIO= .1895

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

2	77	1/ 2	TOC = 1.04
1	77	1/ 2	TOC = 1.48
2	70	2/ 2	TOC = 1.29

CRUISE-342 STATION- 17

A250

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	17	70	76 12 7	2022	122 22.39	47 35.33

DC DEPTH REPL   2CB   3CB   4CB   5CB   6CB   7CB   TCB

TYPE:TOTAL CARBON   WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1 70 2/ 2 TOC = .91

TYPE:OIL AND GREASE   WITH UNITS: MG OIL-GR PER GM DRY MASS

2 77 1/ 2 O-G = .03
1 77 1/ 2 O-G = .41
2 70 2/ 2 O-G = .27
1 70 2/ 2 O-G = .32

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	18	71	76 12 7	2030	122 22.34	47 35.30

TYPE:PCB-SEDIMENT WITH UNITS:NANOGRAMS NCB PER GM DRY MASS

SC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
2	71	1/ 2	.01*	.26	3.32	10.40	4.51	5.61	24.11
1	71	1/ 2	.01*	1.79	15.80	42.63	21.54	16.13	97.92
2	68	2/ 2	.00*	.00*	1.02	4.97	3.45	1.90	11.35
1	68	2/ 2	.01*	.76	12.73	38.06	17.24	11.44	80.24

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

2	71	1/ 2	H2O =23.8	POROSITY = .1322
			SOLIDS=71.2	VOID RATIO= .1524
1	71	1/ 2	H2O =35.3	POROSITY = .1704
			SOLIDS=64.7	VOID RATIO= .2055
2	68	2/ 2	H2O =27.0	POROSITY = .1225
			SOLIDS=73.0	VOID RATIO= .1396
1	68	2/ 2	H2O =33.1	POROSITY = .1575
			SOLIDS=66.9	VOID RATIO= .1869

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

2	71	1/ 2	TOC = 1.11
1	71	1/ 2	TOC = 1.29
2	68	2/ 2	TOC = 2.73

CRUISE-342 STATION- 18

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	18	68	76 12 7	2038	122 22.34	47 35.30

DC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1 68 2/ 2 TOC = .85

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

```
2  71   1/ 2 O-G  =  .20
1  71   1/ 2 O-G  =  .52
2  68   2/ 2 O-G  =  .24
1  68   2/ 2 O-G  =  .40
```

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	19	60	76 12 7	1530	122 20.38	47 36.00

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1	60	2/ 2	.01	8.24	82.46	258.77	131.09	97.56	578.13
2	60	2/ 2	.54	3.67	18.47	69.91	40.46	30.39	163.44
1	54	1/ 2	.00*	4.51	46.34	180.90	106.80	76.76	415.30
2	54	1/ 2	2.20	6.77	39.97	125.86	65.85	50.70	291.35

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	60	2/ 2	H2O =56.2	POROSITY = .3265
			SOLIDS=43.8	VOID RATIO= .4847
2	60	2/ 2	H2O =43.8	POROSITY = .2270
			SOLIDS=56.2	VOID RATIO= .2937
1	54	1/ 2	H2O =58.4	POROSITY = .3462
			SOLIDS=41.6	VOID RATIO= .5296
2	54	1/ 2	H2O =42.0	POROSITY = .2144
			SOLIDS=58.0	VOID RATIO= .2730

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1	60	2/ 2	TOC = 2.38
2	60	2/ 2	TOC = 1.42
1	54	1/ 2	TOC = 1.81

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	19	54	76 12 7	1920	122 20.38	47 36.00

OC DEPTH REPL 2CB 3CB 4CB 5CB 6CB 7CB TCB

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

2 54 1/ 2 TOC = 1.41

TYPE:OIL AND GREASE WITH UNITS: MG OIL-GR PER GM DRY MASS

1	60	2/ 2 O-G	= 2.06
2	60	2/ 2 O-G	= 1.89
1	54	1/ 2 O-G	= 1.53
2	54	1/ 2 O-G	= 2.92

CRUISE-342 STATION- 19

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
342	20	66	76 12 7	1935	122 20.38	47 35.53

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE:PCB-SEDIMENT				WITH UNITS:NANOGRAMS NCB PER GM DRY MASS					
1	66	1/ 2	.01*	4.90	48.15	165.14	97.31	73.33	388.83
2	66	1/ 2	.00*	5.19	18.81	47.10	21.16	15.46	107.73
1	67	2/ 2	.00*	4.90	58.69	217.20	120.00	85.27	486.20
2	67	2/ 2	.01*	8.42	57.53	195.52	105.34	75.37	442.20

TYPE:PCT H2O,SOLIDS.... WITH UNITS:PERCENT; UNITLESS RATIO

1	66	1/ 2	H2O =53.4	POROSITY = .3017
			SOLIDS=46.6	VOID RATIO= .4321
2	66	1/ 2	H2O =37.0	POROSITY = .1815
			SOLIDS=63.0	VOID RATIO= .2217
1	67	2/ 2	H2O =64.8	POROSITY = .4101
			SOLIDS=35.2	VOID RATIO= .6951
2	67	2/ 2	H2O =38.9	POROSITY = .1940
			SOLIDS=61.1	VOID RATIO= .2406

TYPE:TOTAL CARBON WITH UNITS:GM CARBON PER GM DRY SEDIMENT

1	66	1/ 2	TOC = 2.07
2	66	1/ 2	TOC = 1.01
1	67	2/ 2	TOC = 2.96

CRUISE-342 STATION- 20

```
-----------------------------------------------------------------------------------
CRUISE  STATION   WATER DEPTH   YR MON DAY   LOCAL TIME  LONGITUDE-W LATITUDE-N
  342     20           67       76 12   7       1945     122 20.38    47 35.58
-----------------------------------------------------------------------------------

DC DEPTH PEPL     2CB       3CB       4CB       5CB       6CB       7CB       TCB

TYPE:TOTAL CARBON            WITH UNITS:GM CARBON PER GM DRY SEDIMENT

2  67      2/ 2 TOC    = 1.52

TYPE:OIL AND GREASE          WITH UNITS: MG OIL-GR PER GM DRY MASS

1  66      1/ 2 O-G    = 2.71
2  66      1/ 2 O-G    = 2.56
1  67      2/ 2 O-G    = 1.64
2  67      2/ 2 O-G    = 1.98
```

CRUISE-342 STATION- 20

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
343	6	61	76 12 8	905	122 21.44	47 35.43

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
3	61	1/ 2	.00*	.14	.36	.44	.03	.00*	.98
2	52	1/ 2	.00*	.13	.24	.24	.08	.00*	.69
1	1	1/ 2	.00*	.17	.34	.51	.01	.00*	1.02
3	61	2/ 2	.00*	.86	.45	.48	.11	.00*	1.92
2	52	2/ 2	.00*	.11	.22	.13	.05	.00*	.51
1	1	2/ 2	.00*	.24	.29	.25	.06	.00*	.83
TYPE: SPM				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
3	61	1/ 2	.00*	.40	.35	.30	.11	.06	1.21
2	52	1/ 2	.00*	.28	.28	.29	.11	.05	1.01
1	1	1/ 2	.00*	.20	.24	.28	.11	.07	.89
3	61	2/ 2	.00*	.27	.31	.27	.10	.06	1.01
2	52	2/ 2	.00*	.30	.28	.24	.10	.05	.96
1	1	2/ 2	.00*	.12	.20	.34	.10	.05	.80

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
343	10	64	76 12 8	1056	122 21.44	47 35.40

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
3	64	1/ 2	.00*	.15	.33	.24	.07	.00*	.80
2	55	1/ 2	.00*	.21	.31	.36	.04	.00*	.92
1	1	1/ 2	.00*	.11	.44	.54	.09	.00*	1.18
3	64	2/ 2	.00*	.23	.41	.49	.13	.00*	1.26
1	1	2/ 2	.00*	.16	.37	.40	.10	.00*	1.03
2	55	2/ 2	.00*	.23	.36	.37	.06	.01	1.03
TYPE: SPM				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
3	64	1/ 2	.00*	.71	.60	.53	.16	.12	2.12
2	55	1/ 2	.00*	.48	.50	.39	.14	.11	1.63
1	1	1/ 2	.00*	.32	.31	.33	.13	.08	1.18
3	64	2/ 2	.00*	.15	.22	.24	.09	.08	.77
1	1	2/ 2	.00*	.09	.19	.27	.09	.04	.07
2	55	2/ 2	.00*	.15	.26	.34	.13	.07	.97

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
343	17	80	76 12 8	1239	122 22.39	47 35.33

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
3	80	1/ 2	.00*	.54	.70	.33	.00*	.00*	1.57
2	71	1/ 2	.00*	.14	.64	.63	.09	.07	1.57
1	1	1/ 2	.00*	.25	.21	.30	.03	.00*	.79
3	80	2/ 2	.00*	.26	.18	.26	.05	.02	.77
2	71	2/ 2	.00*	.16	.20	.23	.07	.00*	.66
1	1	2/ 2	.00*	.26	.35	.40	.00*	.01*	1.02
TYPE: SPM				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
3	80	1/ 2	.00*	.32	.18	.19	.08	.09	.86
2	71	1/ 2	.00*	.34	.25	.39	.17	.11	1.25
1	1	1/ 2	.00*	.35	.21	.24	.12	.08	.99
3	80	2/ 2	.00*	.28	.36	.43	.14	.08	1.30
2	71	2/ 2	.00*	.21	.25	.25	.10	.05	.87
1	1	2/ 2	.00*	.37	.25	.25	.12	.12	1.11

CRUISE-343 STATION- 17

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
343	19	50	76 12 8	1554	122 20.38	47 36.00

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
3	50	1/ 2	.00*	.33	.68	.43	.10	.00*	1.55
2	41	1/ 2	.00*	.11	.33	.17	.02	.00*	.63
1	1	1/ 2	.00*	.27	.28	.43	.12	.02	1.11
2	41	2/ 2	.00*	.18	.14	.21	.05	.00*	.58
3	55	2/ 2	.00*	.25	.78	.78	.12	.00*	1.92
1	1	2/ 2	.00*	.26	.69	1.12	.65	.44	3.16
TYPE: SPM				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
3	50	1/ 2	.00*	.59	.89	1.06	.25	.12	2.91
2	41	1/ 2	.00*	.79	1.06	1.13	.24	.12	3.33
1	1	1/ 2	.00*	.70	1.50	1.59	.41	.16	4.36
2	41	2/ 2	.00*	.45	.79	.92	.26	.19	2.60
3	50	2/ 2	.00*	.63	1.06	1.31	.31	.12	3.43
1	1	2/ 2	.00*	.33	.58	.73	.22	.14	2.00

CRUISE-343 STATION- 19

CRUISE	STATION	WATER DEPTH	YR MON DAY	LOCAL TIME	LONGITUDE-W	LATITUDE-N
343	44	25	76 12 8	1443	122 21.34	47 35.24

DC	DEPTH	REPL	2CB	3CB	4CB	5CB	6CB	7CB	TCB
TYPE: WATER				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
3	25	1/ 2	.00*	.44	.27	.25	.03	.00*	.99
1	1	1/ 2	.00*	.18	.44	.44	.04	.02	1.11
1	1	2/ 2	.00*	.48	.48	.52	.05	.04	1.56
3	25	2/ 2	.00*	.84	3.34	14.04	1.09	.26	19.57
2	16	2/ 2	.00*	.14	2.19	6.80	.78	.25	10.15
TYPE: SPM				WITH UNITS:PICOGRAMS NCB PER GM ML WATER					
3	25	1/ 2	.00*	.97	1.16	1.19	.25	.13	3.70
2	16	1/ 2	.00*	.64	.86	.98	.24	.18	2.90
1	1	1/ 2	.00*	.84	1.17	1.44	.39	.13	3.97
1	1	2/ 2	.00*	.47	.90	.99	.25	.21	2.83
3	25	2/ 2	.00*	.19	.29	.39	.15	.10	1.11
2	16	2/ 2	.00*	.98	1.23	1.25	.31	.19	3.87

APPENDIX B': DESCRIPTION OF THE LARGE VOLUME FILTER

1. A large volume filter system (LVF) was designed to collect relatively large quantitites of suspended particulate matter with minimum contamination from the system that could interfere with the analyses. The pumping characteristics of the LVF system are variable, depending mainly on the suspended particulate concentrations. However, in most areas sampled, filtering rates in excess of 200 ℓ per hour could be attained. The original system, as described by Pavlou et al.,[20*] has been modified to correct operational deficiencies as follows.

2. A schematic diagram of the entire LVF system is shown in Figure B-1. The intake line consists of sections of one half inch seamless aluminum tubing connected with teflon-lined neoprene tubing. The desired sampling depth is obtained by joining the aluminum sections with Swagelok[R] unions. Larger organisms are excluded by a 40 mesh screen suction strainer at the end of the intake line. The sample can be connected directly to the discharge port of the beer-keg sampler[10]. This mode of operation is advantageous in allowing discrete sampling, more depth flexibility, and the ability to directly measure additional parameters from the same water parcel.

3. Seawater is drawn through the filter by vacuum maintained in the ballast tank which has been evacuated with a rotary vane vacuum pump. The suction is adjusted to compensate for lifting the water to the LVF and to produce less than 0.5 atmosphere pressure drop across the filter. Water collected in the ballast tank is periodically discharged via a positive displacement water pump. Backflushing of the filter in the event of a power loss is prevented by a check valve mounted just behind the filter holder. A totalizing water meter measures the volume sampled. Initial evacuation of the filter holder and final vacuum release are accomplished with the meter bypass-air vent line. All flow lines, valves, and connections between the filter holder and the water meter, including the air vent line, are stainless steel or brass. The ballast discharge, scavenge

* See References at the end of the main text

and priming lines consist of one half inch PVC tubing. A diagram of the filter holder is shown in Figure B-2. The chamber provides an all stainless steel environment for the filter paper, as well as facilitating changing of the filter. In operation, the bottom plate is fixed to the sampler body through the stainless flow lines. The filter support section and the top plate are sealed to the base by four bolts and are removable as a closed unit. The intake line and air vent connections are both equipped with stainless Swagelok^{R} quick disconnects to facilitate separation of the top plate and the support unit when transporting to a clean, protected area to change the filter. The filter is supported by an 8" by 10" piece of stainless steel laminated screen and is held in place by the removable retaining ring. The sections are sealed by silicone rubber gaskets which are separated from the chamber interior by the centering flanges.

4. The filters commonly used are 8" by 10" Reeve Angel 934 AH. These are the same grade filters used for other marine particulate studies, e.g., particulate carbon and nitrogen measurements. They contain no organic binders and have defined retention characteristics with a median retention of about 0.5 μ[22]. They were precleaned by combusting at 500°C for at least 24 hours just prior to each cruise. One filter was randomly chosen from each combusted lot, extracted, and analyzed. At no time was there any evidence of residual contamination. After sampling the filters were folded and placed in solvent-rinsed glass jars with aluminum foil cap liners and stored frozen until analysis.

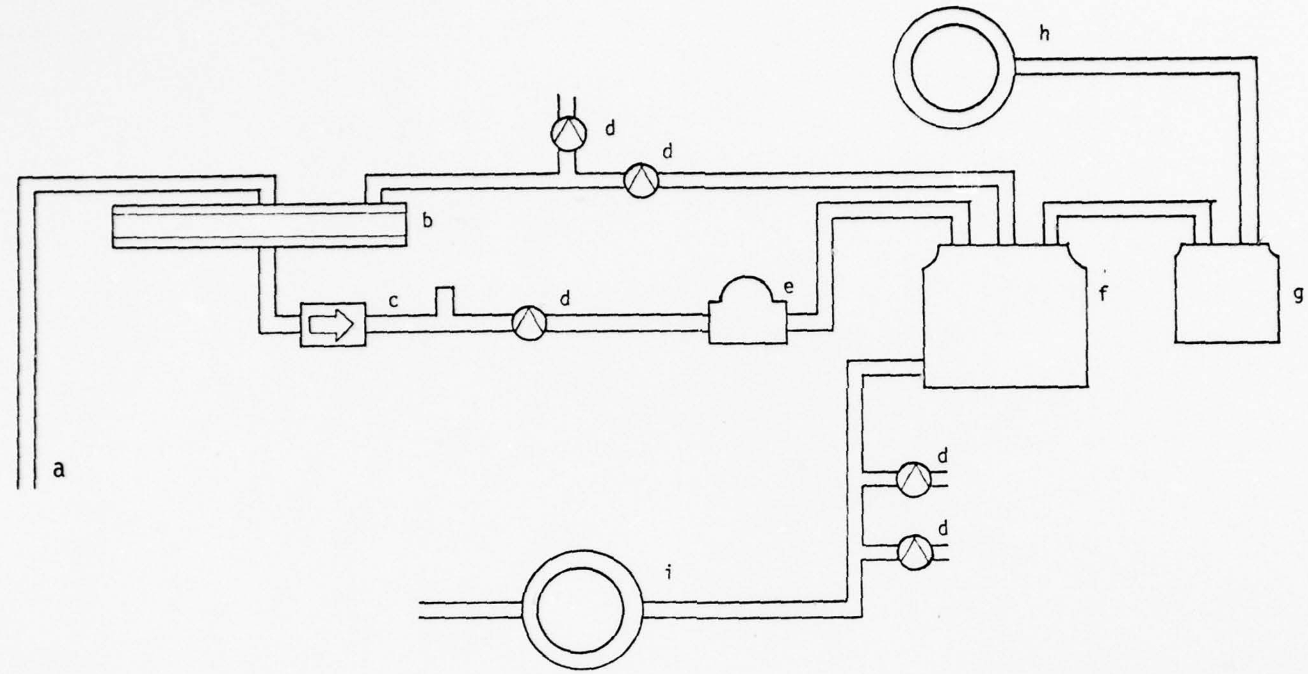


Figure B-1. Schematic Diagram of the Large Volume Filter System: a, intake line; b, filter chamber; c, check valve; d, shut-off valve; e, totalizing water meter; f, main ballast tank; g, water trap; h, vacuum pump; i, water pump.

AD-A061 987 WASHINGTON UNIV SEATTLE DEPT OF OCEANOGRAPHY F/G 13/3
AQUATIC DISPOSAL FIELD INVESTIGATIONS DUWAMISH WATERWAY DISPOSA--ETC(U)
JAN 78 S P PAVLOU, R N DEXTER, W HOM DACW39-76-C-0167
UNCLASSIFIED WES-TR-D-77-24-APP-E NL

5 OF 6
AD
A061987

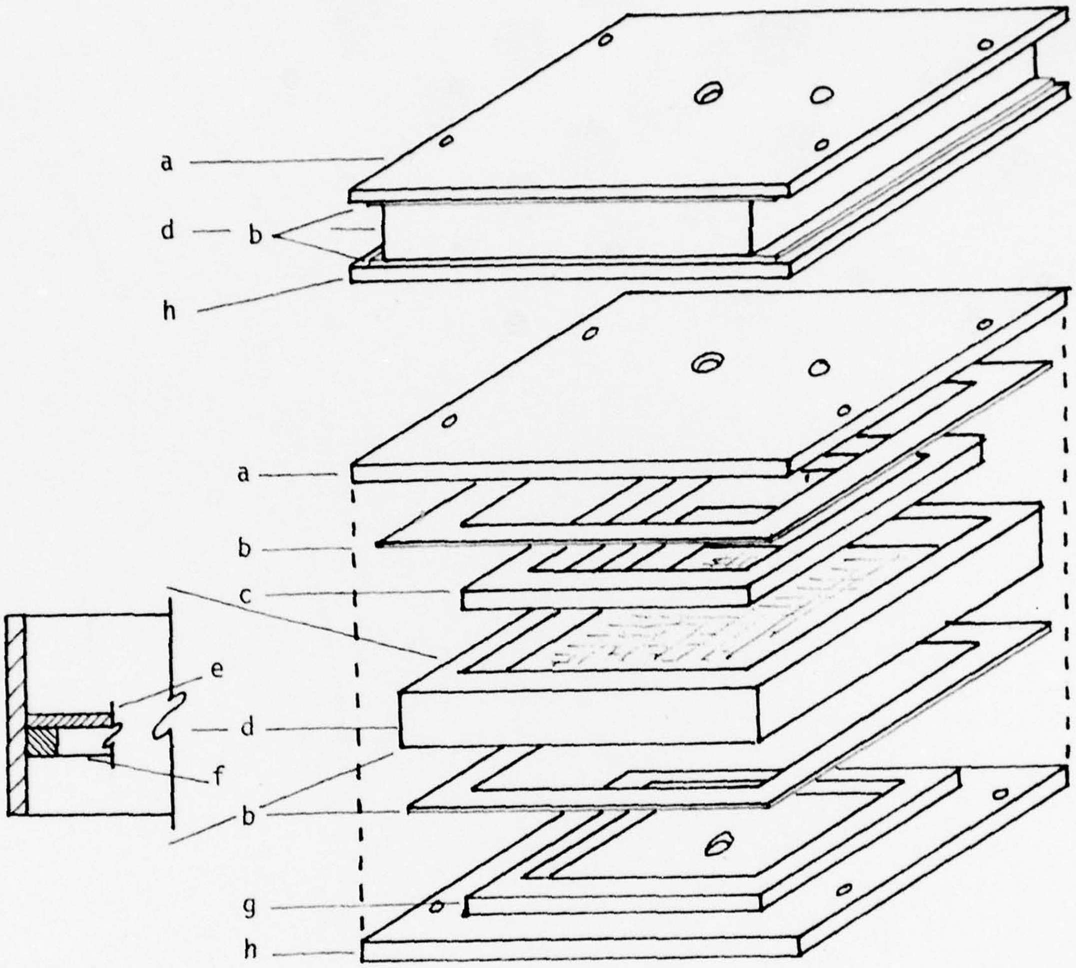


Figure B-2. A Diagram of the Large Volume Filter Chamber: a, top plate; b, silicone rubber gaskets; c, filter retaining ring; d, filter support section; e, screen; f, screen support flange; g, bottom plate covering flange; h, bottom plate.

APPENDIX C': SPECTRAL ANALYSIS TECHNIQUE

Computational Framework

1. Since all chlorobiphenyls show nearly the same molar response on a flame ionization detector (FID),[23, 24*] the relative peak area of a given spectral component to the total area of the mixture is equal to its mole fraction:

$$X_i = \frac{A_i}{\sum_i A_i} \qquad (1)$$

Since

$$X_i = \frac{n_i}{n_t} \approx \frac{C_i}{C_t}$$

and

$$C_t \approx \frac{\rho_{PCB} \times 10^3}{M^*_{PCB}}$$

then

$$C_i \approx \frac{X_i \rho_{PCB} \times 10^3}{M^*_{PCB}} \qquad (2)$$

2. If the degree of chlorination of the component is known, a mass corrected response can be obtained. The mass fraction of each component, F_i, is then expressed as

$$F_i = \frac{A_i M_i}{\sum_i (A_i M_i)} \qquad (3)$$

where A_i is the peak area is the molecular weight in grams mole^{-1} of the *ith* component.

3. Applying this analysis to a standard chlorobiphenyl mixture, one can generate a series of F_i values corresponding to the individual analytical components of that standard. Thus, for any known mass of

---

* See References at the end of the main text

standard m_t, and the appropriate F_i, the specific mass of component i can be determined from

$$m_i = m_t F_i \tag{4}$$

If the same standard is chromatographed under identical conditions, but with EC detection, similar component separation will be obtained but with different response characteristics.

4. The corresponding EC response factor, R_i, is then simply expressed as

$$R_i = \frac{A'_i}{m_i} = \frac{A'_i}{m_t F_i} \tag{5}$$

where A'_i refers to the area in the EC trace. Once an R_i value has been determined from the analyses of the standard, its corresponding m_i in an unknown sample can be easily obtained from relation (5).

5. Although F_i is only internally consistent and independent of the absolute FID response, R_i is governed by the operational parameters which effect A'_i. Therefore, the calibration utility of R_i is limited since simultaneous injections of standards would be required with each unknown. This shortcoming can be overcome by calculating the response of each component relative to an operationally convenient external standard. This relative response is defined as the sensitivity ratio

$$S_i = \frac{R_i}{R_{st}} \tag{6}$$

where R_{st} refers to the EC response of the external standard.

6. Combining relations (5) and (6), the injected mass of each component in a sample extract, u, can be determined as follows.

$$m_{i(u)} = \frac{A'_{i(u)}}{S_i R_{st}} \tag{7}$$

$A'_{i(u)}$ is now the EC peak area of the *ith* component in the sample and R_{st} is the response for the sequentially injected external standard. The corresponding concentration in the sample can be easily computed as

$$[i\text{-CB}]^{x}_{u} = \frac{m_{i(u)}}{LU_x} \tag{8}$$

where L is the volume fraction of the sample extract injected in the chromotograph and U_x is the quantity of sample extracted.

7. Since the isomeric identities of each of the PCB components are largely unknown and difficult to determine, final data reduction is presently most reasonable in terms of the concentrations of CB of the same degree of chlorination, [N-CB]. This is obtained simply as the sum of [i-CB] for all i of the same N.

8. For comparison of the CB content between samples, the mass fraction, F_n, of the different N-CB can be calculated as

$$F_n = \frac{[\text{N-CB}]}{[\text{t-CB}]}$$

where [TCB] is the sum of the concentrations of all CB residues.

9. It can be seen from the above considerations that from measured areas and the appropriate sensitivity ratios, one can determine directly that N-CB abundance in any environmental sample and plots of F_n versus N can be constructed to provide a direct representation of the corresponding intrasample CB distribution.

Experimental Procedures

10. All analyses were performed on a Tracor MT-220 gas chromatograph equipped with both flame ionization and ^{63}Ni-electron capture detectors. A 2 m by 2mm ID pyrex column was packed with 1.5% SP-2250/1.95% SP-2401 on 100/120 Superlcon AW DMCS and operated isothermally at 160°C. The carrier gasses were N_2 and a 5% methane/95% argon mixture for the FI and EC analyses, respectively. Peak areas were recorded on a Westronics

MT-22 strip chart recorder and were measured by planimetry. In cases of insufficient resolution or small peak areas, adjacent peaks were combined and treated as one.

11. The chlorine content, N, per component was determined by combined gas chromatography-mass spectrometry using a Finnigan Model 1015 GCMS at the U.S. EPA Region X Laboratories in Seattle, Washington.

12. F_i and S_i determinations were made with standard resolutions of Aroclors 1242, 1254, and 1260, together with p,p'-DDE as an external standard. Quantitation accuracy was tested using Aroclors of 1242, 1248, 1245 and 1260 and mixtures of these standards.

Results

13. Table C-1 shows the mole fractions, X_i, the molar concentrations, C_i, the mass fractions, F_i, and the degree of chlorination, N, for the components of Aroclors 1242, 1254, and 1260, respectively.

14. From F_i, M_i, and N, the %N-CB composition, the average molecular weights and the chlorine mass percent of each standard were calculated and compared with the manufacturers' specifications and literature values in Table C-2. The good agreement indicates that the F_i values and component N designations are accurate.

15. Comparisons of the mass percent of each N-CB determined from these studies with values from the literature fail to show complete agreement. However, this is probably indicative of variations in the CB content of commercial PCB mixtures. Therefore, F_i values are only directly applicable to the particular standard analyzed.

16. It should be noted that individual GC peaks, while relatively invariant in retention time, represent CB of different N value in different standards. Since the degree of chlorination for each component cannot always be determined in environmental samples, S_i's are useful only if a single value can be assigned to each spectral component.

17. Figure C-1 shows a plot of S_i as a function of relative retention time, $t_{r(i)}$; both quantities are normalized to p,p'-DDE. S_i initially increases rapidly with increasing $t_{r(i)}$ and approaches a maximum at longer retention times. It was encouraging to note that components of the same

Table C-1. Summary of Quantitation Variables for Chlorobiphenyl Standards

i	N	X_i 1242	X_i 1254	X_i 1260	C_i 1242	C_i 1254	C_i 1260	F_i 1242	F_i 1254	F_i 1260	F_n 1242	F_n 1254	F_n 1260
1	0	0.001			0.0053			0.0004			0.0004		
2	1	0.009			0.0476			0.0068					
3	1	0.004			0.0212			0.0026			0.0095		
4	2	0.044			0.2329			0.0378					
5	2	0.011			0.0582			0.0093					
6	2	0.110	0.005		0.5822	0.0232		0.0937	0.0034		0.1408	0.0034	
7	3	0.008			0.0423			0.0079					
8-9	3	0.158	0.005		0.8363	0.0232		0.1552	0.0039				
10	3	0.061			0.3229			0.0607					
11-12	3	0.168	0.004		0.8892	0.0186		0.1652	0.0033				
13-14	3	0.098	0.002		0.5186	0.0093		0.0965	0.0017		0.4855	0.0089	
15-16	4	0.097	0.086	0.003	0.5134	0.3995	0.0128	0.1077	0.0828	0.0024			
17-18	4	0.104	0.035	0.001	0.5505	0.1591	0.0043	0.1159	0.0344	0.0061			
19-20	4	0.023	0.059		0.1217	0.2741		0.0259	0.0560				
21	4	0.071	0.084+	0.036+	0.3758	0.3902+	0.1538+	0.0786	0.0802+	0.0320+			
22-24	4	0.033	0.170+	0.050+	0.1747	0.7897+	0.2136+	0.0365	0.1622+	0.0442+	0.3642	0.1732	0.0031
25-27	5		0.086	0.007*		0.3995	0.0299*		0.0814	0.0063*			
28	5		0.098	0.039*		0.4553	0.1666*		0.0935	0.0376*			
29-31	5		0.141	0.163*		0.6550	0.6963*		0.1342	0.1595*		0.6190	0.0762
32-33	6		0.053	0.122		0.2462	0.5212		0.0620	0.1188			
34	5		0.063	0.082*		0.2927	0.3503*		0.0675	0.0797*			
35	6		0.077	0.120		0.3577	0.5126		0.0911	0.1170		0.1531	0.5126
36	7		0.013	0.082		0.0604	0.3503		0.0173	0.0877			
37-40	7		0.019	0.112		0.0872	0.4784		0.0249	0.1198			
41-42	7			0.102			0.4357			0.1087			
43-44	7			0.080			0.3417			0.0856		0.0422	0.4018

+ These components are pentachlorobiphenyls (N=5)

* These components are hexachlorobiphenyls (N=6)

Table C-2. Comparison of Mass Percent Composition for Aroclor Standards Among Various Investigators

	This Study			Ugawa et al., 1973 [24]			Webb and McCall, 1973 [25]			Thurston, 1971 [26]			Monsanto, 1972 [27]		
N-CB	1242	1254	1260	1242	1254	1260	1242	1254	1260	1242	1254	1260	1242	1254	1260
1	0.95						1.1			3			1	0.1	
2	14.08	0.34		7.79+	0.35++	0.12‡	16.95			13			16	0.5	
3	48.55	0.89		59.66	2.76	1.52	39.19			28			49	1.	
4	36.42	17.32	0.31	28.11	8.93	1.63	31.83	13.8		30	11		26	21	
5	0.1	61.90	7.62	1.42	60.28	5.38	8.71	61.9	11.53	22	49	12	8	48	
6		15.31	51.26		22.07	35.69		23.3	46.14	4	34	38	1	23	
7		4.22	40.18		5.62	44.70		1.0	34.84		6	41		6	
8			0.1			10.14			6.10			8	100		
9						0.83									
t-CB	100.05	99.98	100.00	96.98	100.00	100.00	97.78	100.00	98.61	100.0	100.0	100	100.0	99.5	
% Cl	42.1	54.97	59.76	42.9	54.60	60.70	43.4	54.7	60.11	46.1	55.7	60.1	43.1	54.1	60
$\overline{M}$	263.0	325.17	366.6	256.1	330.09	376.3	260.6	327.9	365.1	278.8	336	374.3	264.8	326.0	

+Kenechlor 300 (Kanegafuchi Chemical Industrial Co. Ltd., Japan)

++Kenechlor 500

‡Kenechlor 600

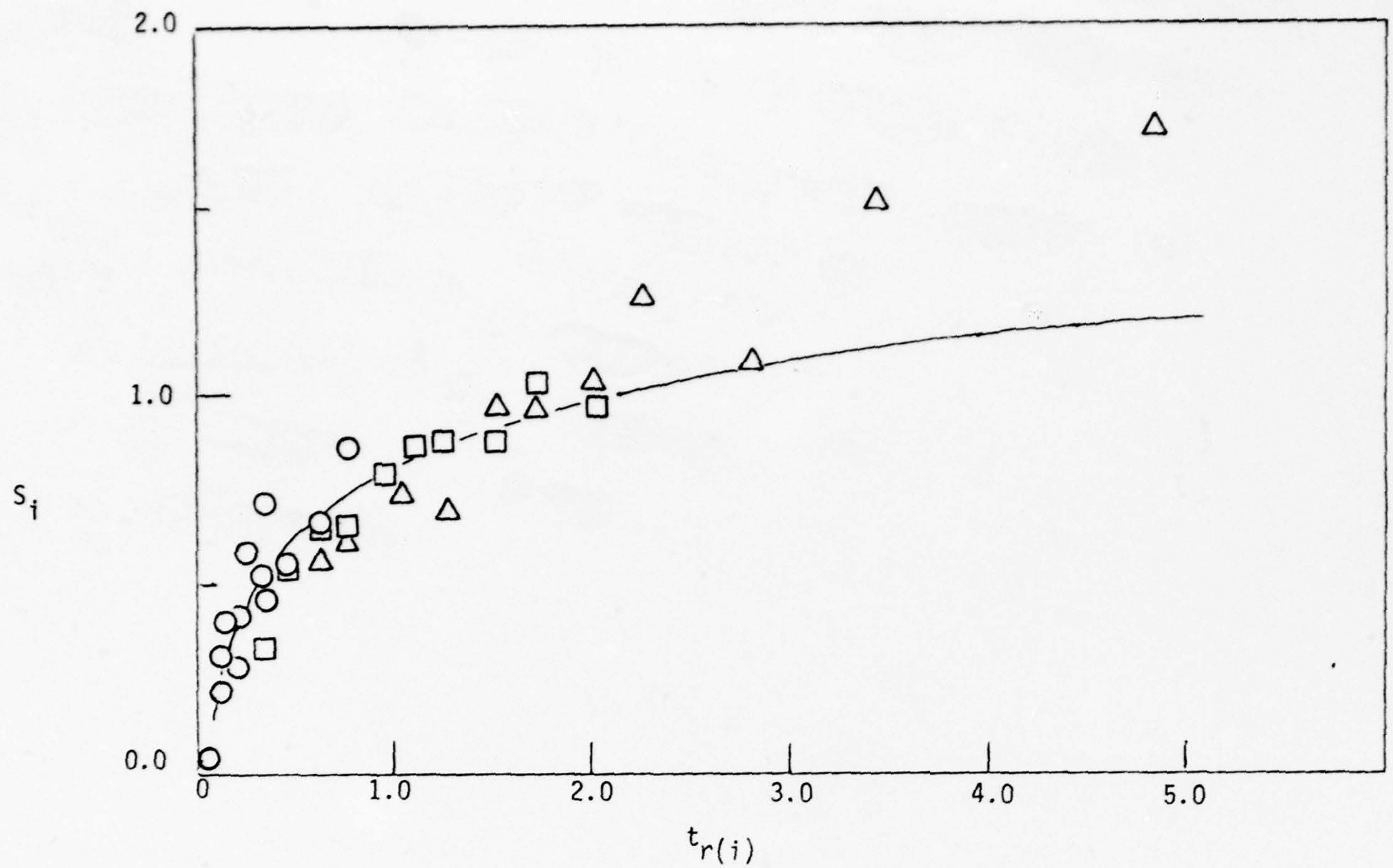


Figure C-1. Plot of the Sensitivity Ratio, S_i, Versus the Relative Retention Times, $t_{r(i)}$, of the Components of Aroclors 1242, 1254, 1260. Both S_i and $t_{r(i)}$ were Normalized to p,p'-DDE.

retention time, even though of different N value, gave similar S_i values. S_i values were therefore averaged for those components which appeared in more than one standard. In order to facilitate computation of S_i in terms of $t_{r(i)}$ an empirical equation

$$S_i = 0.614 \log t_{r(i)} + 0.783$$

was generated by regression analysis. The correlation coefficient was 0.927. Since the scatter in the data was mainly due to the difficulty in accurately measuring components of small peak area, it was felt that the S_i values calculated from the equation could give better results.

18. From the quantitation of known standard injections via S_i analysis, it became apparent that much of the variation in S_i for components of both low and high N values was real. Use of a combination of the averaged values at the spectral extremes and the S_i values calculated from the empirical equation for the intermediate points gave the best agreement between the known and S_i-calculated [t-CB] and [N-CB] values for a series of injected standards. The values of S_i thus obtained are compiled in Table C-3.

19. From these S_i values, a series of single and mixed Aroclor standards were injected and quantitated. The results are shown in Table C-4. Since the instrument precision, determined from peak height comparisons of repeated injections of a single standard, is approximately ± 2%, the quantitation by the S_i technique is quite accurate. The net analytical precision for the GC analysis, including instrument response fluctuations, precision in the reading of the volume injected, and planimetry errors, was approximately ± 5%.

Table C-3. Values of the Relative Retention Time, $t_{r(i)}$, and Sensitivity Ratio, S_i, for Aroclor Standard Components

i	$t_{r(i)}$	S_i
1	0.003	0.000
2	0.005	0.000
3	0.074	0.000
4-6	0.115	0.170
7-9	0.199	0.300
10-14	0.299	0.506
15-16	0.397	0.537
17-18	0.498	0.597
19-21	0.636	0.662
22-24	0.794	0.722
25-27	0.970	0.775
28-30	1.114	0.812
31	1.291	0.851
32-33	1.508	0.893
34	1.729	0.929
35	2.013	0.970
36	2.297	1.263
37-40	2.824	1.094
41-42	3.471	1.504
43-44	4.833	1.708

Table C-4. Results of the Quantitation of CB Residues by EC-GC Using S_i Technique

Standard	$m_{t(inj)} \times 10^{-10}$ g	$\Sigma m_i \times 10^{-10}$ g	% Δ
1242	2.061	2.058	- 0.15
1254	2.674	2.713	1.46
1260	2.279	2.221	- 2.54
1242 + 1254	3.254	3.389	4.15
1242 + 1260	3.170	3.255	2.68
1254 + 1260	2.891	2.943	1.80
1242 + 1248 + 1260	4.986	4.910	- 1.52

APPENDIX D': DATA REDUCTION

1. The following computer program was written to facilitate the reduction of the voluminous raw analytical data acquired during this project and is based on the computation scheme described in Appendix C'. Figure D-1 shows an overall flow diagram for the whole program. Figures D-2 through D-7 are detailed flow schemes of the component routines. A listing of the program together with a sample input and output is included.

2. The program was written for intended use on a time sharing computer system. It was developed on the CDC 6400 computer available at the Academic Computer Center at the University of Washington. The program is written in FORTRAN IV and requires the availability of a free format input subroutine. In this program, the local routine KNVRT, Reference Document No. W00022 available at the computer center, was implemented.

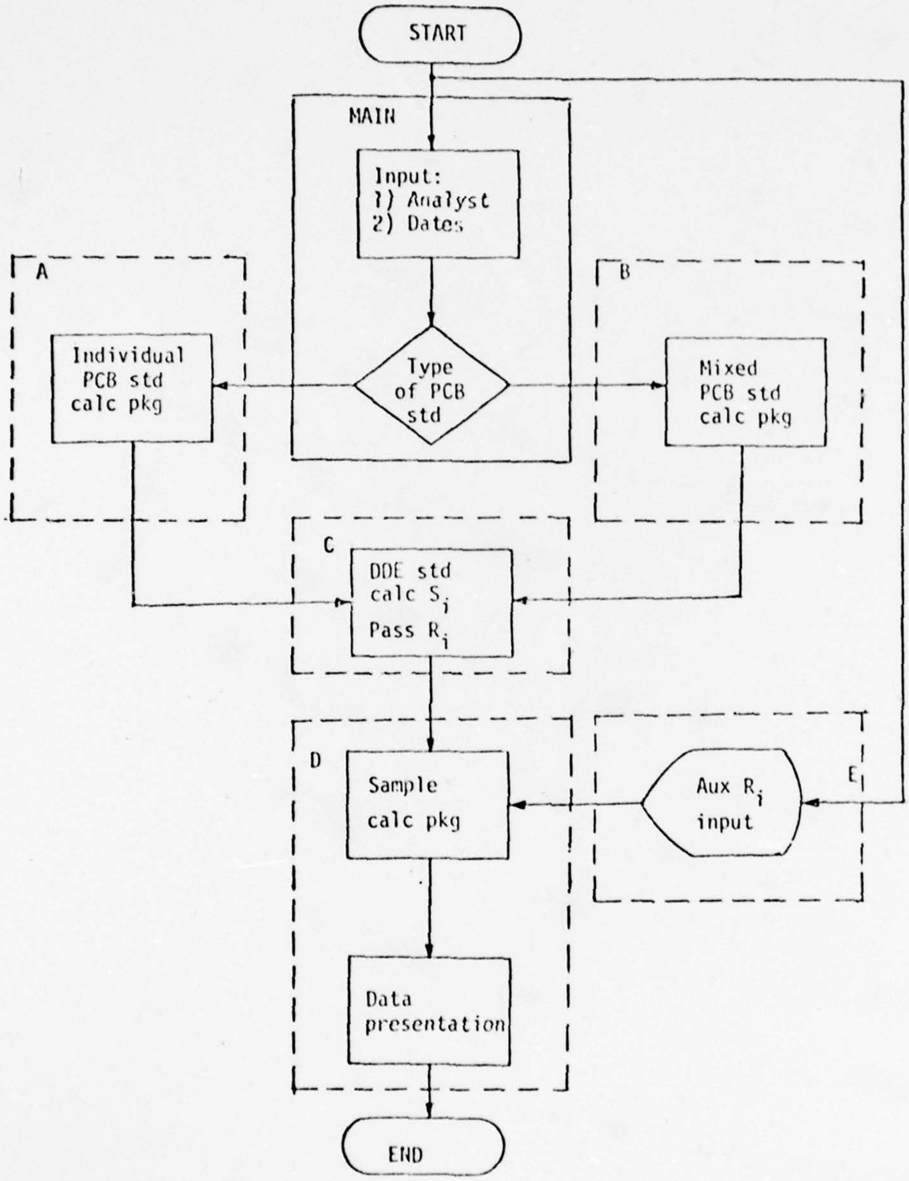


Figure D-1. Overall Flow Scheme for Data Reduction. Detailed Flow Diagrams for Components A, B, C, D, E and Main are Presented in Figures D-2 through D-7.

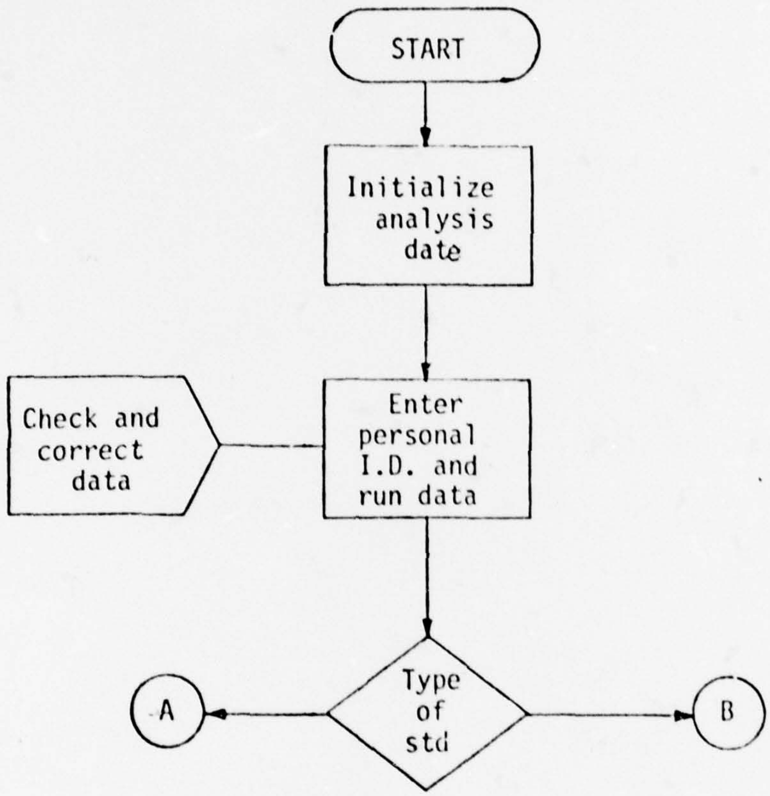


Figure D-2. Detailed Flow Diagram of the Main Section.

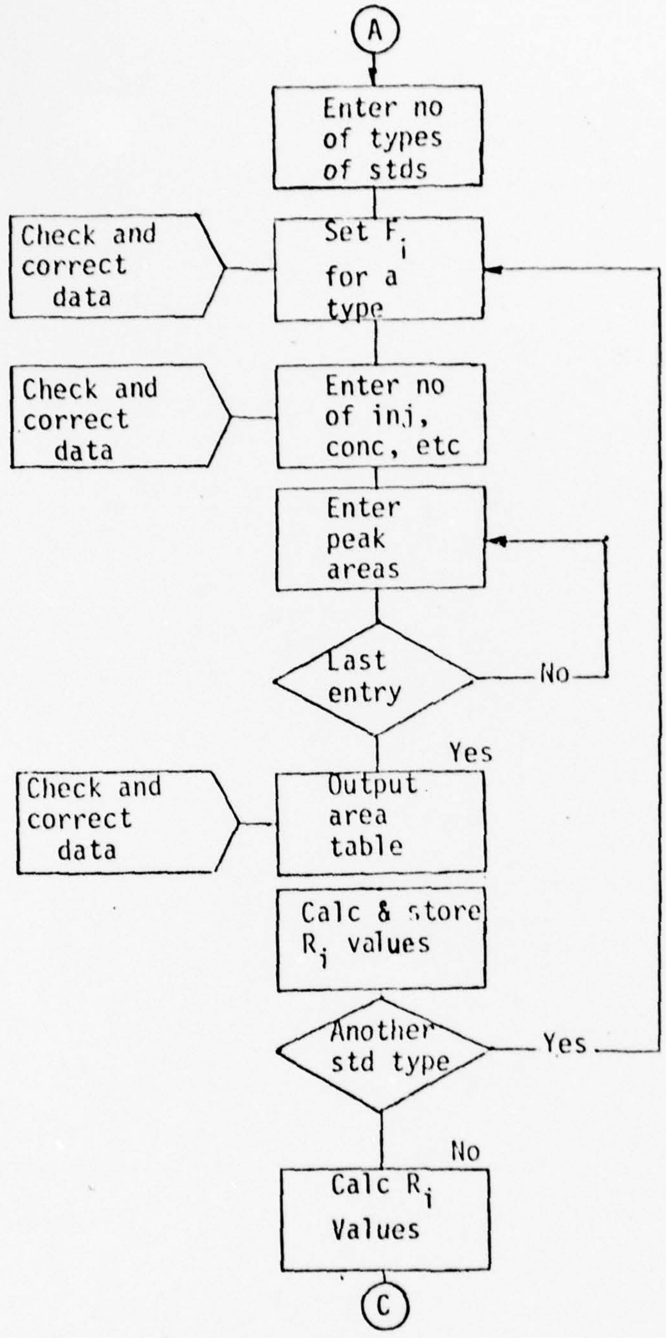


Figure D-3. Detailed Flow Diagram of Section A, Individual PCB Standard and Calculation Package

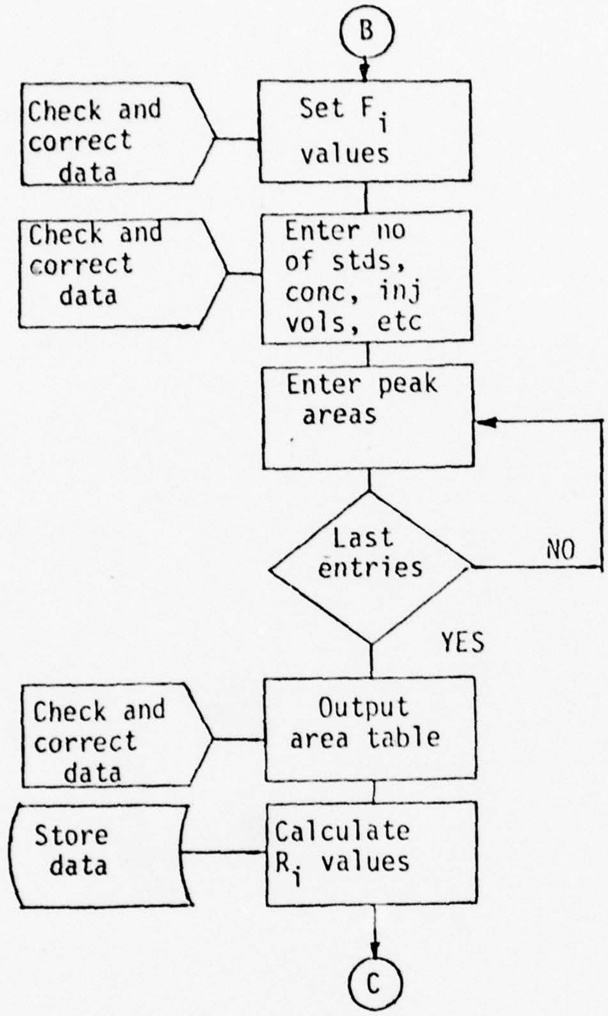


Figure D-4. Detailed Flow Diagram of Section B, Mixed PCB Standard Calculation Package.

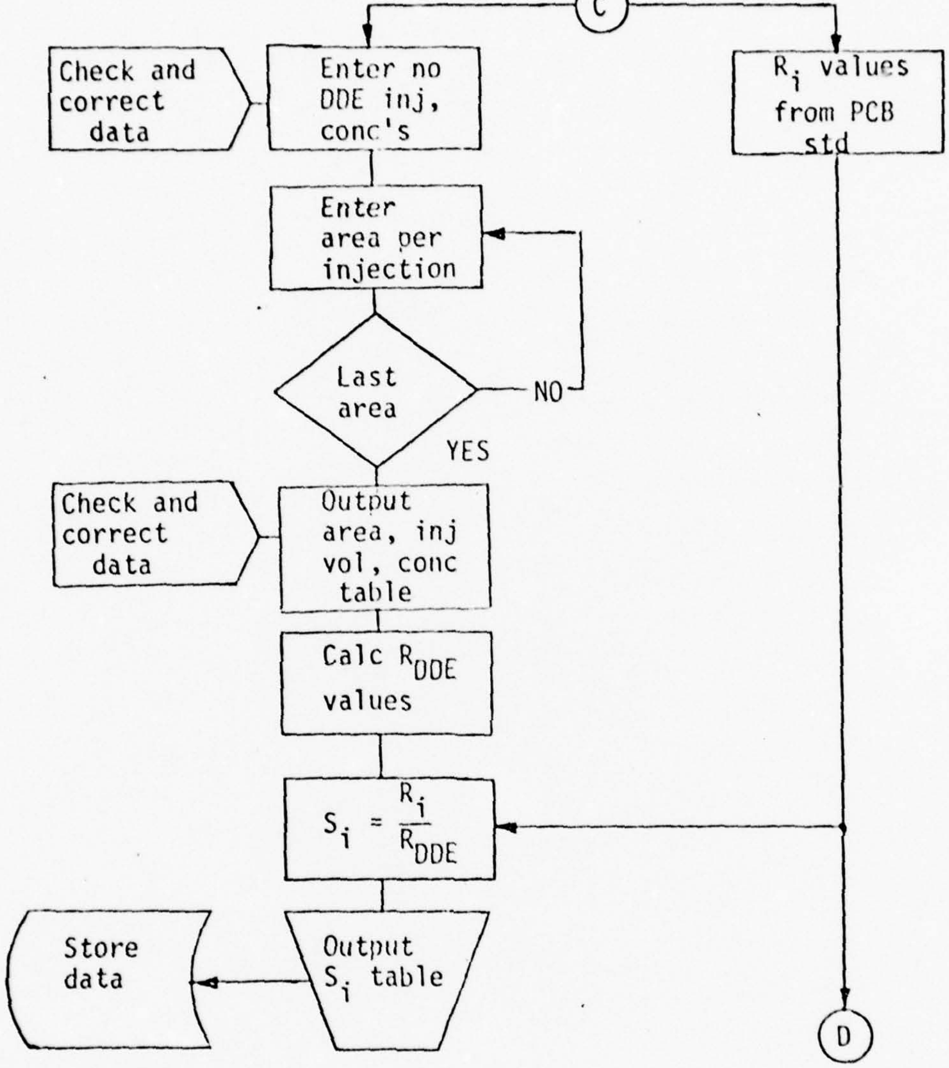


Figure D-5. Detailed Flow Diagram of Section C, DDE Standard and Calculation of S_i

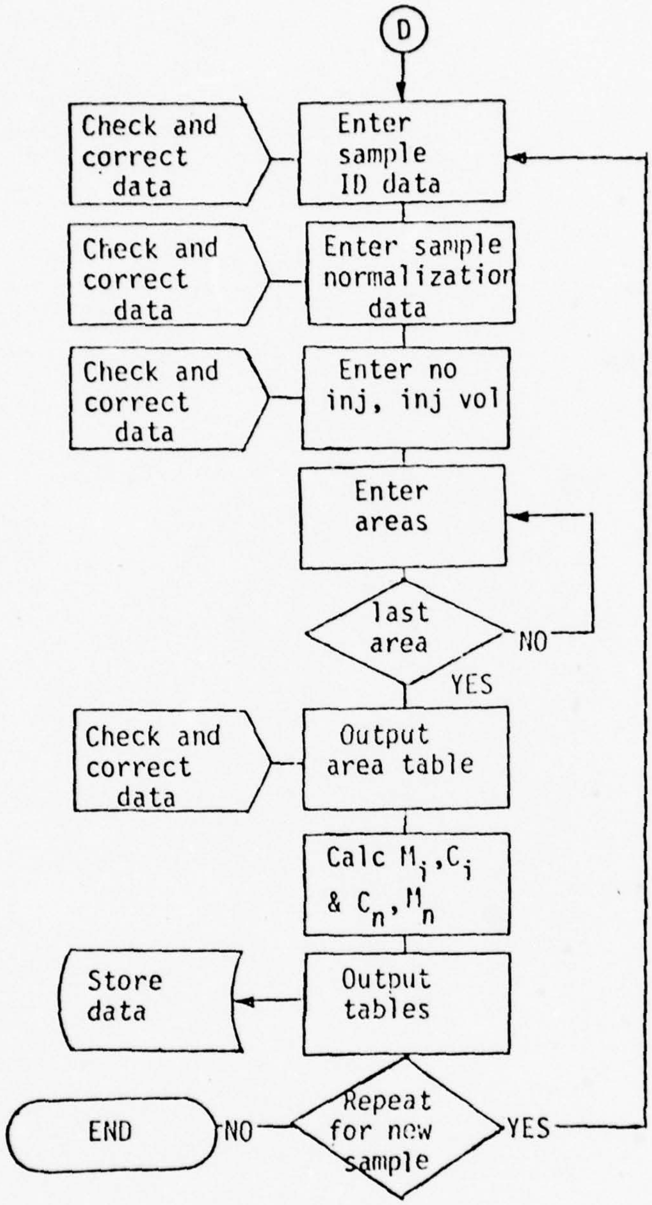


Figure D-6. Detailed Flow Diagram of Section D, Sample Calculation Package

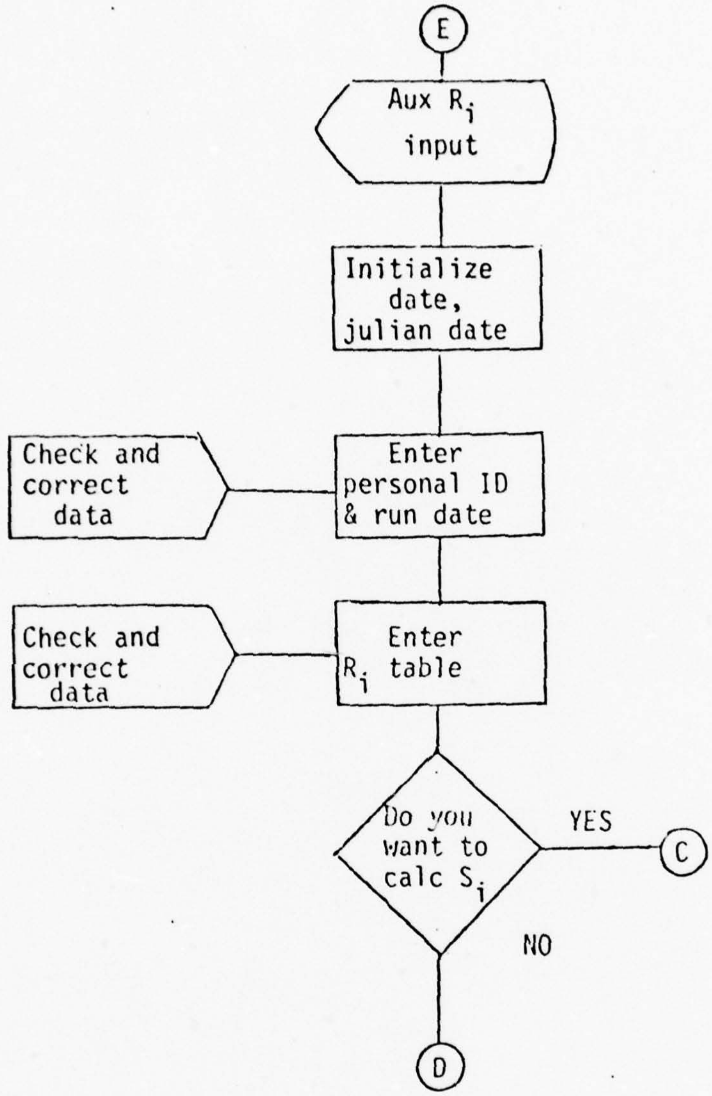


Figure D-7. Detailed Flow Diagram of Section E, Auxiliary R_i Input.

Program Listing

```
      OVERLAY(SHRT,0,0)
      PROGRAM SHRTCAL (TERIN,TEROUT,SPAREA,SPAREB,INPUT,OUTPUT,TAPE15=
     $TERIN,TAPE16=TEROUT,TAPE17=SPAREA,TAPE18=SPAREB,TAPE5=INPUT,TAPE6=
     $OUTPUT,SPAREC,SPARED,TAPE20=SPARED,TAPE19=SPAREC)
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      EQUIVALENCE (IROUT,ROUT)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRP(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMI/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/8HGROUP MN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL(20)
      DATA CHL/20*9/
      DATA SRM/20*1.E-99/,SRRM/20*1.E-99/,SRMPT/20*1.E-99/
      DATA SR/20*1.E-99/,SRR/20*1.E-99/,SRPT/20*1.E-99/
      DATA RSD/20*1.E-99/,RAVG/20*1.E-99/,SI/20*1.E-99/
      DATA TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT/15,16,17,18,19,20,5,6/
      DATA JANS,JMPP,IEND/0,0,21/
      EXTERNAL SVFILE,CHKSUM
      CALL RECOVR (SVFILE,177B,0)
      CALL CONNEC (15)
```

```
      CALL CONNEC (16)
      CALL DATEB (LDATE)
      DECODE (6,70,LDATE) MON,IDA,IYR
      CALL JULDATE (IDA,MON,IYR,JDATE)
C     ENTER IDEMTITY AND DATE
 5    CONTINUE
      WRITE (TOUT,75)
      READ (TIN,55) IDATE
      WRITE (TOUT,80) IDATE
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 10,50,5
 10   CONTINUE
      WRITE (TOUT,90)
      READ (TIN,65) IDPER
      WRITE (TOUT,80) IDPER
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 15,50,10
 15   CONTINUE
      SHIFT = 0.0
      EPCB = 0.0
      CALL FORMIN
 20   CONTINUE
      J = 1
      WRITE (TOUT,105)
      READ (TIN,60) IANS
      WRITE (TOUT,85) IANS
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 25,20,20
 25   CONTINUE
      IF (IANS.EQ.1H1) J = -1
      IF (IANS.EQ.1H1) CALL OVERLAY (4HSHRT,1,0)
      IF (J) 45,30,30
 30   CONTINUE
      IF (IANS.EQ.1H2) J = -1
      IF (IANS.EQ.1H2) CALL OVERLAY (4HSHPT,2,0)
      IF (J) 40,35,35
 35   CONTINUE
      IF (IANS.EQ.1H3) J = -1
```

```
      IF (IANS.EQ.1H3) EPCB = 2.0
      IF (IANS.EQ.1H3) CALL OVERLAY (4HSHPT,3,0)
      IF (J) 40,20,20
 40   CONTINUE
      CALL OVERLAY (4HSHRT,4,0)
      CALL OVERLAY (4HSHRT,5,0)
 45   CONTINUE
      CALL TBLSET
      CALL OVERLAY (4HSHRT,6,0)
      CALL TEND
C     FORMATS
      WRITE (TOUT,100)
 50   CONTINUE
      WRITE (TOUT,95)
C
C
      STOP
C
 55   FORMAT (8A10)
 60   FORMAT (A1)
 65   FORMAT (A3)
 70   FORMAT (3I2)
 75   FORMAT (T5,*ENTER RUN DATE(10 CHAR MAX):*)
 80   FORMAT (T5,*CHARACTERS ACCEPTED=*,6A10)
 85   FORMAT (T5,*VALUE ACCEPTED=*,A2)
 90   FORMAT (T5,*ENTER 3 CHAR PERSONAL INITIALS:*)
 95   FORMAT (///T5,*ERROR IN CHECSUBR, JANS=0....*)
 100  FORMAT (//T10,*vvvvvv ERROR IN JMPP,JMPP LT 0*)
 105  FORMAT (T5,*ENTER 1 IF YOU WANT TO ENTER RI ONLY,*,/T5,*ENTER 2  F
     $OR MIXED PCB STDS,*,/T5,*ENTER 3 FOR INDIVIDUAL PCB STDS....=*)
      END
```

```
      SUBROUTINE SVFILE(IXCHNG,IFLAG,IFLDLN)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      DIMENSION IXCHNG(17), IFLDLN(40000B)
      IFLAG = 1
      END FILE SPA
      END FILE SPB
      END FILE SPC
      END FILE SPD
      WRITE (TOUT,5)
      RETURN
      ENTRY CHKSUM
C
    5 FORMAT (//T5,*ENDFILE PERFORMED, SYSTEM ERROR ENCNTRED*)
      END
```

```
OVERLAY(SHRT,1,0)
PROGRAM ONEZERO
DIMENSION IROUT(10)
COMMON /SET1/ RIN(8),ROUT(10)
COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,[illegible]UT
EQUIVALENCE (IROUT,ROUT)
INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
COMMON /SET5/ DDECON(50),RDDE(50)
COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
COMMON /SET8/ FRACC(20),FRACM(20)
COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
COMMON /SET10/ CMI(8,5),CSCON(8,5)
COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
COMMON /SET12/ ANORM,SAMUNIT
COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
DATA LBL9/2HRI/,LBL10/2HMI/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/8HGROUP MN/
DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
INTEGER CHL(20)
DATA CHL/20*9/
CALL RISET
RETURN
END
```

```
OVERLAY(SHRT,2,0)
PROGRAM TWOZERO
DIMENSION IROUT(10)
COMMON /SET1/ RIN(8),ROUT(10)
COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
EQUIVALENCE (IROUT,ROUT)
INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
COMMON /SET5/ DDECON(50),RDDE(50)
COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
COMMON /SET8/ FRACC(20),FRACM(20)
COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
COMMON /SET10/ CMI(8,5),CSCON(8,5)
COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
COMMON /SET12/ ANORM,SAMUNIT
COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
DATA LBL9/2HRI/,LBL10/2HMI/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/8HGROUP MN/
DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
INTEGER CHL(20)
DATA CHL/20*9/
CALL FSET
CALL STDST
RETURN
END
```

```
OVERLAY(SHRT,3,0)
PROGRAM THRZERO
DIMENSION IROUT(10)
COMMON /SET1/ RIN(8),RCUT(10)
COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
EQUIVALENCE (IROUT,ROUT)
INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
COMMON /SET5/ DDECON(50),RDDE(50)
COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
COMMON /SET8/ FRACC(20),FRACM(20)
COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),P(7,20)
COMMON /SET10/ CMI(8,5),CSCON(8,5)
COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
COMMON /SET12/ ANORM,SAMUNIT
COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
DATA LBL9/2HRI/,LBL10/2HMI/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/8HGROUP MN/
DATA LBL16/10HGROUP CN   /,LBL17/2HSI/,LBL18/5HSTDCB/
INTEGER CHL(20)
DATA CHL/20*9/
CALL EACHPCB
RETURN
END
```

```
OVERLAY(SHRT,4,0)
PROGRAM FOUZERO
DIMENSION IROUT(10)
COMMON /SET1/ RIN(8),ROUT(10)
COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
EQUIVALENCE (IROUT,ROUT)
INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
COMMON /SET5/ DDECON(50),RDDE(50)
COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SPR(20)
COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
COMMON /SET8/ FRACC(20),FRACM(20)
COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
COMMON /SET10/ CMI(8,5),CSCON(8,5)
COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
COMMON /SET12/ ANORM,SAMUNIT
COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
DATA LBL9/2HRI/,LBL10/2HMI/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/8HGROUP MN/
DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
INTEGER CHL(20)
DATA CHL/20*9/
CALL DDEST
RETURN
END
```

```
OVERLAY(SHRT,5,0)
PROGRAM FIVZERO
DIMENSION IROUT(10)
COMMON /SET1/ RIN(8),ROUT(10)
COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
EQUIVALENCE (IROUT,ROUT)
INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
COMMON /SET5/ DDECON(50),RDDE(50)
COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
COMMON /SET8/ FRACC(20),FRACM(20)
COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),P(7,20)
COMMON /SET10/ CMI(8,5),CSCON(8,5)
COMMON /SET11/ IDCHAR,ITYPE,IDPEP,IDATE,JDATE,MON,IDA,IYR,FINVOL
COMMON /SET12/ ANORM,SAMUNIT
COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
DATA LBL9/2HRI/,LBL10/2HMI/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/8HGROUP MN/
DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
INTEGER CHL(20)
DATA CHL/20*9/
CALL RICAL
RETURN
END
```

```
OVERLAY(SHRT,6,0)
PROGRAM SIXZERO
DIMENSION IROUT(10)
COMMON /SET1/ RIN(8),ROUT(10)
COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
EQUIVALENCE (IROUT,ROUT)
INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
COMMON /SET5/ DDECON(50),RDDE(50)
COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
COMMON /SET8/ FRACC(20),FRACM(20)
COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
COMMON /SET10/ CMI(8,5),CSCON(8,5)
COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
COMMON /SET12/ ANORM,SAMUNIT
COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
DATA LBL9/2HRI/,LBL10/2HMI/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/8HGROUP MN/
DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
INTEGER CHL(20)
DATA CHL/20*9/
IF (SHIFT.NE.1.0) CALL SAMIN
IF (SHIFT.EQ.1.0) CALL SAMIN2
RETURN
END
```

```
      SUBROUTINE FSET
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IPOUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SP(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRPM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STONAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IOPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
      CALL FISET (CHL,JMPP)
      IF (JMPP) 30,5,25
C     ENTER NO CLUSTERS
    5 CONTINUE
      WRITE (TOUT,45)
      READ (TIN,40) RIN
      NELM = KNVRT(RIN,1,80,ROUT,3)
      IF (NELM.GT.1) WRITE (TOUT,80)
      IF (NELM.GT.1) GO TO 5
      IF (IPOUT(1).LT.1.OR.IPOUT(1).GT.20) WRITE (TOUT,75)
      IF (IPOUT(1).LT.1.OR.IPOUT(1).GT.20) GO TO 5
```

```
      NOCLU = IROUT(1)
      WRITE (TOUT,85) NOCLU
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 10,35,5
C
 10   CONTINUE
C     ENTER CLUSTER TABLE
      WRITE (TOUT,50)
      WRITE (TOUT,55)
      DO 20 I=1,NOCLU
 15         WRITE (TOUT,60) I
            READ (TIN,40) RIN
            NELM = KNVRT(RIN,1,80,ROUT,3)
            IF (NELM.NE.2) WRITE (TOUT,80)
            IF (NELM.NE.2) GO TO 15
            IF (ROUT(1).GT.1.0.OR.ROUT(1).LT.1.E-25) WRITE (TOUT,65)
            IF (ROUT(1).GT.1.0.OR.ROUT(1).LT.1.E-25) GO TO 15
            IF (IROUT(2).LT.2.OR.IROUT(2).GT.7) WRITE (TOUT,70)
            IF (IROUT(2).LT.2.OR.IROUT(2).GT.7) GO TO 15
            FI(I) = ROUT(1)
            CHL(I) = IROUT(2)
 20   CONTINUE
 25   CONTINUE
      NSTRT = 1
      NSTOP = NOCLU
      CALL FICK (NSTRT,NSTOP)
C     FORMATS
      RETURN
 30   WRITE (TOUT,95)
 35   CONTINUE
      WRITE (TOUT,90)
C
      RETURN
C
C
 40   FORMAT (8A10)
 45   FORMAT (T5,*ENTER NO OF CLUSTERS(20 MAX):*)
 50   FORMAT (/T5,*ENTER FI TABLE:*/,T5,*RANGE:1.0-1.0E-25, CHLORINE NO:
```

```
      $2-7*)
55    FORMAT (T5,*ENTER DATA IN FORM - FI,CHLORINE NO:*)
60    FORMAT (T5,*ENTER CLUSTER *,I2,*:*)
65    FORMAT (T5,*ERROR IN FIELD 1*)
70    FORMAT (T5,*ERROR IN FIELD 2*)
75    FORMAT (T5,*ERROR, A VALUE IS NOT IN ACCEPTABLE RANGEv*)
80    FORMAT (T5,*ERROR-INCOPRECT NO OF ENTRIES *)
85    FORMAT (T5,*VALUE ENTEPED=*,I10)
90    FORMAT (///T5,*ERROR IN CHECSUBR, JANS=0....*)
95    FORMAT (//T10,*vvvvvv ERROR IN JMPP,JMPP LT 0*)
      END
```

```
      SUBROUTINE FICK(NSTRT,NSTOP)
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPEP,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
      GO TO 10
C     CHECK AND CORRECT FI TABLE
 5    CONTINUE
      CALL CKOUT (LBL6,JANS)
      IF (JANS) 30,45,10
C
 10   CONTINUE
      WRITE (TOUT,65) LBL6
      WRITE (TOUT,80) IDATE,MON,IDA,IYR,JDATE,IDPEP
      WRITE (TOUT,100)
      WRITE (TOUT,70)
```

```
      DO 15 I=NSTRT,NSTOP
           WRITE (TOUT,85) I,FI(I),CHL(I)
   15 CONTINUE
   20 CONTINUE
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 5,45,25
C
   25 CONTINUE
      WRITE (TOUT,75)
      READ (TIN,50) RIN
      NELM = KNVRT(RIN,1,80,ROUT,4)
      IF (NELM.NE.3) WRITE (TOUT,60)
      IF (NELM.NE.3) GO TO 25
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.NOCLU) WRITE (TOUT,55)
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.NOCLU) GO TO 25
      IF (ROUT(2).LT.1.E-25.OR.ROUT(2).GT.1.0) WRITE (TOUT,55)
      IF (ROUT(2).LT.1.E-25.OR.ROUT(2).GT.1.0) GO TO 25
      IF (IROUT(3).LT.2.OR.IROUT(3).GT.7) WRITE (TOUT,55)
      IF (IROUT(3).LT.2.OR.IROUT(3).GT.7) GO TO 25
      JB = IROUT(1)
      FI(JB) = ROUT(2)
      CHL(JB) = IROUT(3)
      GO TO 20
C
   30 CONTINUE
      FT = 0.0
      DO 35 I=NSTRT,NSTOP
           FT = FT+FI(I)
   35 CONTINUE
      WRITE (TOUT,90) FT
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 40,45,25
   40 CONTINUE
C     FORMATS
      RETURN
      WRITE (TOUT,105)
   45 CONTINUE
      WRITE (TOUT,95)
```

```
C
      RETURN
C
C
   50 FORMAT (8A10)
   55 FORMAT (T5,*ERROR, A VALUE IS NOT IN ACCEPTABLE RANGEv*)
   60 FORMAT (T5,*ERROR-INCORRECT NO OF ENTRIES *)
   65 FORMAT (/T15,A10,* DATA TABLE:*)
   70 FORMAT (/T5,*CL NO*,T12,* FI *,T26,*NO CHLORINES*)
   75 FORMAT (T5,* ENTER DATA IN FORM CLNO, FI, NO CHLOR:*)
   80 FORMAT (T5,*RUN DATE:*,A10,2X,*CALC DATE:*,3(I2,1X),1X,I3,2X,
     $*PERSON:*,A4)
   85 FORMAT (T5,I2,T12,E10.4,T26,I2)
   90 FORMAT (/T5,*.....SUM OF FI,S = *,E10.4)
   95 FORMAT (///T5,*ERROR IN CHECSUBR, JANS=0....*)
  100 FORMAT (T5,*CL=CLUSTER NUMBER*)
  105 FORMAT (//T10,*vvvvvv ERROR IN JMPP,JMPP LT 0*)
      END
```

```
      SUBROUTINE STDST
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),RCUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
      EPCB = 1.0
      CALL STDLB
C     ENTER STANDARD AREAS
      WRITE (TOUT,50)
      WRITE (TOUT,45)
      WRITE (TOUT,40)
      IF (FORM.EQ.2.0) CALL ARBIN
      IF (FORM.NE.2.0) CALL ARAIN
      GO TO 10
C     CHECK AND CORRECT STANDARD AREAS
 5    CONTINUE
```

```
      CALL CKOUT (LBL2,JANS)
      IF (JANS) 30,35,10
C
 10   CONTINUE
      WRITE (TOUT,55) LBL2
      WRITE (TOUT,70) IDATE,MON,IDA,IYR,JDATE,IDPEP
      WRITE (TOUT,80) LBL8,STDNAM
      WRITE (TOUT,85)
      WRITE (TOUT,60) (I,I=1,7)
      DO 15 I=1,NOCLU
           WRITE (TOUT,65) I,(AREA(J,I),J=1,NOINJ)
 15   CONTINUE
 20   CONTINUE
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 5,35,25
 25   CONTINUE
      CALL ACRIN
      GO TO 20
C
 30   CONTINUE
C     FORMATS
      RETURN
 35   CONTINUE
      WRITE (TOUT,75)
C
      RETURN
C
C
 40   FORMAT (T5,* MAX NO ENTRIES ACCEPTED PER CLUSTER=10:*)
 45   FORMAT (T5,*ENTER ONLY INTEGERS FOR AREAS, MIN=1,MAX=999999 vvv*)
 50   FORMAT (T5,*ENTER STD RAW AREAS TABLE:*)
 55   FORMAT (/T15,A10,* DATA TABLE:*)
 60   FORMAT (T5,*CL*,T9,7(*AREA *,I1,2X))
 65   FORMAT (T5,I2,T9,7(F6.0,2X))
 70   FORMAT (T5,*RUN DATE:*,A10,2X,*CALC DATE:*,3(I2,1X),1X,I3,2X,
     $*PERSON:*,A4)
 75   FORMAT (///T5,*ERROR IN CHECSUBR, JANS=0....*)
 80   FORMAT (T5,A10,* NAMES:*,5A10)
```

```
85    FORMAT (T5,*CL=CLUSTER NUMBER*)
      END
```

```
      SUBROUTINE ARAIN
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,FPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
5     CONTINUE
      DO 30 I=1,NOINJ
10       CONTINUE
         DO 25 J=1,NOCLU
15          CONTINUE
            AREA(I,J) = 0.0
            WRITE (TOUT,40) I,J
            READ (TIN,35) RIN
            IF (RIN(1).EQ.10HSSSSSSSSSS) GO TO 5
            IF (RIN(1).EQ.10HXXXXXXXXXX.AND.J.EQ.1.AND.I.NE.1) I = I
     $      -1
```

```
          IF (RIN(1).EQ.10HXXXXXXXXXX.AND.J.EQ.1.AND.I.NE.1)
     $     GO TO 10
          IF (RIN(1).EQ.10HXXXXXXXXXX) GO TO 10
          NELM = KNVRT(RIN,1,80,ROUT,10)
          IF (NELM.GT.10.OR.NELM.LT.1) WRITE (TOUT,50)
          IF (NELM.GT.10.OR.NELM.LT.1) GO TO 15
          DO 20 K=1,NELM
              AREA(I,J) = AREA(I,J)+FLOAT(IROUT(K))
              IF (IROUT(K).LT.1.OR.IROUT(K).GT.999999) WRITE
     $        (TOUT,45)
              IF (IROUT(K).LT.1.OR.IROUT(K).GT.999999) GO TO 15
   20     CONTINUE
   25     CONTINUE
   30 CONTINUE
C     FORMATS
C
      RETURN
C
C
   35 FORMAT (8A10)
   40 FORMAT (T5,*ENTER INJ NO *,I2,*,CLUSTER NO *,I2,*:*)
   45 FORMAT (T5,*ERROR, A VALUE IS NOT IN ACCEPTABLE RANGEv*)
   50 FORMAT (T5,*ERROR-INCORRECT NO OF ENTRIES *)
      END
```

```
      SUBROUTINE DDEST
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SPDDE,SRRDDE,SPDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
C     ENTER DDE STD CONC,INJ VOL AREAS
      WRITE (TOUT,190)
      WRITE (TOUT,95)
      READ (TIN,90) NAMDDE
    5 CONTINUE
      WRITE (TOUT,100)
      READ (TIN,90) RIN
      NELM = KNVRT(RIN,1,80,ROUT,3)
      IF (NELM.NE.1) WRITE (TOUT,155)
      IF (NELM.NE.1) GO TO 5
      IF (IROUT(1).GT.7.OR.IROUT(1).LT.1) WRITE (TOUT,140)
```

```
      IF (IROUT(1).GT.7.OR.IROUT(1).LT.1) GO TO 5
      NODDECN = IROUT(1)
      WRITE (TOUT,185) NODDECN
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 10,85,5
C
 10   CONTINUE
      DO 20 I=1,NODDECN
 15      CONTINUE
         WRITE (TOUT,105) I
         READ (TIN,90) RIN
         NELM = KNVRT(RIN,1,80,ROUT,9)
         IF (NELM.GT.1) WRITE (TOUT,155)
         IF (NELM.GT.1) GO TO 15
         IF (ROUT(1).LT.1.E-25.OR.ROUT(1).GT.1.) WRITE (TOUT,140)
         IF (ROUT(1).LT.1.E-25.OR.ROUT(1).GT.1.) GO TO 15
         CDE(I) = ROUT(1)
 20   CONTINUE
 25   CONTINUE
      WRITE (TOUT,110)
      READ (TIN,90) RIN
      NELM = KNVRT(RIN,1,80,ROUT,3)
      IF (NELM.GT.1) WRITE (TOUT,155)
      IF (NELM.GT.1) GO TO 25
      IF (IROUT(1).GT.50.OR.IROUT(1).LT.1) WRITE (TOUT,140)
      IF (IROUT(1).GT.50.OR.IROUT(1).LT.1) GO TO 25
      NODDEIN = IROUT(1)
      WRITE (TOUT,185) NODDEIN
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 30,85,25
C
 30   CONTINUE
      WRITE (TOUT,115)
      DO 40 I=1,NODDEIN
 35      CONTINUE
         WRITE (TOUT,120) I
         READ (TIN,90) RIN
         NELM = KNVRT(RIN,1,80,ROUT,5)
```

```
      IF (NELM.NE.3) WRITE (TOUT,155)
      IF (NELM.NE.3) GO TO 35
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.NODDECN) WRITE (TOUT,125)
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.NODDECN) GO TO 35
      IF (ROUT(2).LT.0.01.OR.ROUT(2).GT.9.99) WRITE (TOUT,130)
      IF (ROUT(2).LT.0.01.OR.ROUT(2).GT.9.99) GO TO 35
      IF (IROUT(3).LT.1.OR.IROUT(3).GT.999999) WRITE (TOUT,135)
      IF (IROUT(3).LT.1.OR.IROUT(3).GT.999999) GO TO 35
      ARDDE(I) = FLOAT(IROUT(3))
      DDEINJ(I) = ROUT(2)
      JJ = IROUT(1)
      DDECON(I) = CDE(JJ)
   40 CONTINUE
      GO TO 50
C     CHECK AND CORRECT DDE DATA ENTRIES
   45 CONTINUE
      CALL CKOUT (LBL1,JANS)
      IF (JANS) 80,85,50
C
   50 CONTINUE
      SRDDE = 0.0
      SRRDDE = 0.0
      SRDDEPT = 0.0
      DO 55 I=1,NODDEIN
          RDDE(I) = 1000.*ARDDE(I)/(DDECON(I)*DDEINJ(I))
          IF (ARDDE(I).LT.2.) RDDE(I) = 1.
          SRDDE = SRDDE+RDDE(I)
          SRRDDE = SRRDDE+RDDE(I)**2
          IF (ARDDE(I).LT.2.) GO TO 55
          SRDDEPT = SRDDEPT+1.0
   55 CONTINUE
      WRITE (TOUT,170) LBL1
      WRITE (TOUT,180) IDATE,MON,IDA,IYR,JDATE,IDPER
      WRITE (TOUT,200) LBL1,NAMDDE
      WRITE (TOUT,145)
      DO 60 I=1,NODDEIN
          WRITE (TOUT,150) I,DDEINJ(I),DDECON(I),ARDDE(I),RDDE(I)
   60 CONTINUE
```

```
      DDEAVG = SRDDE/SRDDEPT
      DDESTD = 0.0
      IF (SRDDEPT.LT.3.) GO TO 65
      DDESTD = SQRT((1./(SRDDEPT-1.))*(SRRDDE-(SRDDE**2)/SRDDEPT))
 65   CONTINUE
      WRITE (TOUT,160) LBL4,DDEAVG,DDESTD
      WRITE (TOUT,165) LBL4,SRDDE,SRPDDE,SPDDEPT
 70   CONTINUE
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 45,85,75
C
 75   CONTINUE
      WRITE (TOUT,175)
      WRITE (TOUT,205)
      READ (TIN,90) RIN
      NELM = KNVRT(RIN,1,80,ROUT,5)
      IF (NELM.NE.4) WRITE (TOUT,155)
      IF (NELM.NE.4) GO TO 75
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.NODDEIN) WRITE (TOUT,140)
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.NODDEIN) GO TO 75
      IF (ROUT(2).LT.0.01.OR.ROUT(2).GT.9.99) WRITE (TOUT,140)
      IF (ROUT(2).LT.0.01.OR.ROUT(2).GT.9.99) GO TO 75
      IF (ROUT(3).LT.1.E-25.OR.ROUT(3).GT.1.) WRITE (TOUT,140)
      IF (ROUT(3).LT.1.E-25.OR.ROUT(3).GT.1.) GO TO 75
      IF (IROUT(4).LT.1.OR.IROUT(4).GT.999999) WRITE (TOUT,140)
      IF (IROUT(4).LT.1.OR.IROUT(4).GT.999999) GO TO 75
      JE = IROUT(1)
      DDECON(JE) = ROUT(3)
      DDEINJ(JE) = ROUT(2)
      ARDDE(JE) = FLOAT(IROUT(4))
      GO TO 70
C
 80   CONTINUE
C     FORMATS
      RETURN
 85   CONTINUE
      WRITE (TOUT,195)
C
```

```
      RETURN
C
C
 90   FORMAT (8A10)
 95   FORMAT (T5,*ENTER DDE STD NAMES(50 CHAR MAX):*)
 100  FORMAT (T5,*ENTER NO OF STD DDE CONC USED(7 MAX):*)
 105  FORMAT (T5,*ENTER DDE STD CONC NO *,I2,*:*)
 110  FORMAT (T5,*ENTER NO OF INJ (50 MAX):*)
 115  FORMAT (T5,*ENTER STD DDE CONC DATA IN FORM:STD NO,INJVOL,AREA*/T5
     $,*STD NO AND AREA =INTEGER,INJ VOL = REAL*)
 120  FORMAT (T5,*ENTER DATA FOR DDE INJ NO *,I2,*:*)
 125  FORMAT (T5,*ERROR IN FIELD 1*)
 130  FORMAT (T5,*ERROR IN FIELD 2*)
 135  FORMAT (T5,*ERROR IN FIELD 3*)
 140  FORMAT (T5,*ERROR, A VALUE IS NOT IN ACCEPTABLE RANGE∨*)
 145  FORMAT (/T5,*NO*,T12,*INJ VOL*,T24,*CONC*,T34,*AREA*,T42,*RDDE*)
 150  FORMAT (T5,I2,T12,F5.2,T22,E10.4,T34,F6.0,T42,E10.4)
 155  FORMAT (T5,*ERROR-INCORRECT NO OF ENTRIES *)
 160  FORMAT (/T5,A4,T10,*AVG=*,E10.4,T30,*STD DEV=*,E10.4)
 165  FORMAT (T5,A4,T10,*STATS:*,T18,*SR=*,E10.4,T35,*SRR=*,E10.4,T54,
     $*SPT=*,F4.1)
 170  FORMAT (/T15,A10,* DATA TABLE:*)
 175  FORMAT (T5,* REENTER WHOLE LINE OF DATA...*/T5*=*)
 180  FORMAT (T5,*RUN DATE:*,A10,2X,*CALC DATE:*,3(I2,1X),1X,I3,2X,
     $*PERSON:*,A4)
 185  FORMAT (T5,*VALUE ENTERED=*,I10)
 190  FORMAT (/T5,*ENTER DDE STANDARD DATA:*)
 195  FORMAT (///T5,*ERROR IN CHECSUBR, JANS=0....*)
 200  FORMAT (T5,A10,* NAMES:*,5A10)
 205  FORMAT (T5,*DO NOT REENTER RDDE, IT IS CALCULATED*/T5,*=*)
      END
```

```
      SUBROUTINE RICAL
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRPM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
C     ENTERED ALL STD DATA, CALC RI+S
C     CALCULATE RI FOR PCB STANDARDS
      IF (EPCB.GT.1.0) GO TO 25
      DO 10 J=1,NOCLU
          SR(J) = 0.0
          SRR(J) = 0.0
          SRPT(J) = 0.0
          DO 5 I=1,NOINJ
              AMI = 0.001*CONC(I)*STDINJ(I)*FI(J)
              R(I,J) = AREA(I,J)/AMI
              IF (AREA(I,J).LT.2.) R(I,J) = 1.0
```

```
                SR(J) = SR(J)+R(I,J)
                SRR(J) = SRR(J)+R(I,J)**2
                IF (AREA(I,J).LT.2.) GO TO 5
                SRPT(J) = SRPT(J)+1.0
5           CONTINUE
10    CONTINUE
      CALL CKOUT (LBL9,JANS)
      IF (JANS) 25,50,15
C
      ENTRY RICAL2
15    CONTINUE
      WRITE (TOUT,55) LBL9
      WRITE (TOUT,95) LBL2,STDNAM
      WRITE (TOUT,60) IDATE,MON,IDA,IYR,JDATE,IDPER
      WRITE (TOUT,100)
      WRITE (TOUT,65) (I,I=1,7)
      DO 20 J=1,NOCLU
          WRITE (TOUT,70) J,(R(I,J),I=1,NOINJ)
20    CONTINUE
25    CONTINUE
      DO 35 J=1,NOCLU
          RAVG(J) = 0.0
          SI(J) = 0.0
          IF (SRPT(J).LT.1.0) GO TO 30
          RAVG(J) = SR(J)/SRPT(J)
          SI(J) = RAVG(J)/DDEAVG
30        CONTINUE
          RSD(J) = 0.0
          IF (SRPT(J).LT.3.) GO TO 35
          RSD(J) = SQRT((1./(SRPT(J)-1.))*(SRR(J)-(SR(J)**2)/SRPT(J)))
35    CONTINUE
      WRITE (TOUT,55) LBL9
      WRITE (TOUT,60) IDATE,MON,IDA,IYR,JDATE,IDPER
      WRITE (TOUT,95) LBL2,STDNAM
      WRITE (TOUT,100)
      WRITE (TOUT,75)
      DO 40 I=1,NOCLU
          WRITE (TOUT,80) I,RAVG(I),RSD(I),SR(I),SRR(I),SRPT(I),SI(I)
```

```
 40   CONTINUE
      JV = 1
      WRITE (SPC,85) LBL18,JDATE,IYR,MON,IDA,IDPER,JV,IEND,DDEAVG,DDESTD
     $,SRDDE,SRRDDE,SRDDEPT
      DO 45 JW=1,20
           JV = JW+1
           WRITE (SPC,85) LBL18,JDATE,IYR,MON,IDA,IDPER,JV,IEND,PAVG(JW)
     $     ,RSD(JW),SR(JW),SRR(JW),SRPT(JW),SI(JW)
 45   CONTINUE
C     FORMATS
      IF (EPCB.GT.1.0) RETURN
      WRITE (TOUT,105)
      READ (TIN,110) IAN
      IF (IAN.EQ.1H1) CALL STDRECL
      RETURN
 50   CONTINUE
      WRITE (TOUT,90)
C
      RETURN
C
C
 55   FORMAT (/T15,A10,* DATA TABLE:*)
 60   FORMAT (T5,*RUN DATE:*,A10,2X,*CALC DATE:*,3(I2,1X),1X,I3,2X,
     $*PERSON:*,A4)
 65   FORMAT (T5,*CL*,T9,7(3X,*RI *,I2,2X))
 70   FORMAT (T5,I2,T9,7(E9.3,1X))
 75   FORMAT (T5,*CLNO*,T10,*RAVG*,T21,*STDDEV*,T32,*SR*,T43,*SRR*,T54,
     $*SPT*,T66,*SI*)
 80   FORMAT (T5,I2,T10,6(E10.4,1X))
 85   FORMAT (T2,A5,I3,3I2,A3,2I2,8E10.4,I2)
 90   FORMAT (///T5,*ERROR IN CHECSUBR, JANS=0....*)
 95   FORMAT (T5,A10,* NAMES:*,5A10)
100   FORMAT (T5,*CL=CLUSTER NUMBER*)
105   FORMAT (/T5,*ENTER 1.0 TO BACK CALC STD CONC,OTHERWISE 0.0:*)
110   FORMAT (A1)
      END
```

```
      SUBROUTINE SAMIN
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMFCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMODE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAP(5,20),SP(20),SPP(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
C     SAMPLE CALC, ENTRY ETC.
    5 CONTINUE
      WRITE (TOUT,225)
      READ (TIN,135) SAMNAME
      WRITE (TOUT,245) SAMNAME
      CALL CKCORPT (LBL14,JANS)
      IF (JANS) 10,125,5
   10 CONTINUE
      WRITE (TOUT,250)
      READ (TIN,145) IDCHAR
      WRITE (TOUT,245) IDCHAR
```

```
      CALL CKCORRT (LBL14,JANS)
      IF (JANS) 15,125,10
   15 CONTINUE
      WRITE (TOUT,230)
      READ (TIN,135) SAMUNIT
      WRITE (TOUT,245) SAMUNIT
      CALL CKCORRT (LBL14,JANS)
      IF (JANS) 20,125,15
   20 CONTINUE
      WRITE (TOUT,270)
   25 CONTINUE
      READ (TIN,135) RIN
      NELM = KNVRT(RIN,1,80,ROUT,7)
      IF (NELM.NE.4) WRITE (TOUT,190)
      IF (NELM.NE.4) GO TO 30
      IF (IROUT(1).LT.(1).OR.IROUT(1).GT.(99)) WRITE (TOUT,155)
      IF (IROUT(1).LT.(1).OR.IROUT(1).GT.(99)) GO TO 30
      IF (IROUT(2).LT.(1).OR.IROUT(2).GT.(5)) WRITE (TOUT,160)
      IF (IROUT(2).LT.(1).OR.IROUT(2).GT.(5)) GO TO 30
      IF (ROUT(3).LT.(1.E-25).OR.ROUT(3).GT.(1.E25)) WRITE (TOUT,165)
      IF (ROUT(3).LT.(1.E-25).OR.ROUT(3).GT.(1.E25)) GO TO 30
      IF (ROUT(4).LT.(1.E-3).OR.ROUT(4).GT.(1.E25)) WRITE (TOUT,170)
      IF (ROUT(4).LT.(1.E-3).OR.ROUT(4).GT.(1.E25)) GO TO 30
      ITYPE = IROUT(1)
      ISAMINJ = IROUT(2)
      ANORM = ROUT(3)
      FINVOL = ROUT(4)
      WRITE (TOUT,260)
      WRITE (TOUT,265) ITYPE,ISAMINJ,ANORM,FINVOL
      CALL CKCORRT (LBL14,JANS)
      IF (JANS) 35,125,30
   30 CONTINUE
      WRITE (TOUT,210)
      GO TO 25
C
   35 CONTINUE
      WRITE (TOUT,235)
      READ (TIN,135) RIN
```

```
      NELM = KNVRT(RIN,1,80,ROUT,7)
      IF (NELM.NE.ISAMINJ) WRITE (TOUT,235)
      IF (NELM.NE.ISAMINJ) GO TO 35
      DO 40 I=1,ISAMINJ
           VOLINJ(I) = ROUT(I)
           IF (ROUT(I).LT.1.E-3.OR.ROUT(I).GT.9.99) WRITE (TOUT,175)
           IF (ROUT(I).LT.1.E-3.OR.ROUT(I).GT.9.99) GO TO 35
 40   CONTINUE
 45   CONTINUE
      WRITE (TOUT,280) (VOLINJ(K),K=1,ISAMINJ)
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 50,125,35
 50   CONTINUE
      CALL CKOUT (LBL11,JANS)
      IF (JANS) 75,125,55
C
 55   CONTINUE
      WRITE (TOUT,195) LBL11
      WRITE (TOUT,220) IDATE,MON,IDA,IYR,JDATE,IDPER
      WRITE (TOUT,180)
      DO 60 I=1,ISAMINJ
           WRITE (TOUT,185) I,VOLINJ(I)
 60   CONTINUE
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 45,125,65
C
 65   CONTINUE
      WRITE (TOUT,210)
      READ (TIN,135) RIN
      NELM = KNVRT(RIN,1,80,ROUT,3)
      IF (NELM.NE.2) WRITE (TOUT,190)
      IF (NELM.NE.2) GO TO 65
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.ISAMINJ) WRITE (TOUT,155)
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.ISAMINJ) GO TO 65
      IF (ROUT(2).LT.1.E-3.OR.ROUT(2).GT.9.99) WRITE (TOUT,160)
      IF (ROUT(2).LT.1.E-3.OR.ROUT(2).GT.9.99) GO TO 65
      JL = IROUT(1)
      VOLINJ(JL) = ROUT(2)
```

```
 70   CONTINUE
      WRITE (TOUT,200)
      READ (TIN,140) IANS
      IF (IANS.EQ.2HNO) GO TO 45
      IF (IANS.EQ.2HYE) GO TO 65
      GO TO 70
C     ENTER SAMPLE AREAS
 75   CONTINUE
      WRITE (TOUT,240)
      WRITE (TOUT,150)
      NOINJ = ISAMINJ
      IF (SHIFT.EQ.1.0) GO TO 80
      IF (FORM.EQ.2.0) CALL ARBIN
      IF (FORM.NE.2.0) CALL ARAIN
      ENTRY SAMIN2
      IF (SHIFT.EQ.1.0) ISAMINJ = NOINJ
 80   CONTINUE
      DO 85 I=1,ISAMINJ
           DO 85 J=1,NOCLU
                SAMAR(I,J) = AREA(I,J)
 85   CONTINUE
C
      IF (SHIFT.EQ.1.0) GO TO 115
 90   CONTINUE
      WRITE (TOUT,195) LBL7
      CALL SAMLBL
      WRITE (TOUT,130)
      WRITE (TOUT,205) (I,I=1,5)
      DO 95 J=1,NOCLU
           WRITE (TOUT,215) J,(SAMAR(I,J),I=1,ISAMINJ)
 95   CONTINUE
 100  CONTINUE
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 105,125,110
 105  CONTINUE
      CALL CKOUT (LBL7,JANS)
      IF (JANS) 115,125,90
C
```

```
 110  CONTINUE
      CALL ACRIN
      GO TO 100
C
 115  CONTINUE
      CALL CLCAL
      CALL CHCAL
      SHIFT = 0.0
      IF (JUMP) 120,125,5
 120  CONTINUE
C     FORMATS
      WRITE (TOUT,275)
 125  CONTINUE
      WRITE (TOUT,255)
C
      RETURN
C
C
 130  FORMAT (T5,*CL=CLUSTER NUMBER*)
 135  FORMAT (8A10)
 140  FORMAT (A2)
 145  FORMAT (A5)
 150  FORMAT (T5,*ENTER ONLY INTEGERS FOR AREAS, MIN=1,MAX=999999 vvv*)
 155  FORMAT (T5,*ERROR IN FIELD 1*)
 160  FORMAT (T5,*ERROR IN FIELD 2*)
 165  FORMAT (T5,*ERROR IN FIELD 3*)
 170  FORMAT (T5,*ERROR IN FIELD  4*)
 175  FORMAT (T5,*ERROR, A VALUE IS NOT IN ACCEPTABLE RANGEv*)
 180  FORMAT (/T5,*NO*,T12,*INJ VOL*,T24,*CONC*,T34,*AREA*,T42,*RDDE*)
 185  FORMAT (T5,I2,T12,F5.2,T22,E10.4,T34,F6.0,T42,E10.4)
 190  FORMAT (T5,*ERROR-INCORRECT NO OF ENTRIES *)
 195  FORMAT (/T15,A10,* DATA TABLE:*)
 200  FORMAT (/T5,*ANY (MORE) CORRECTIONS↓ ENTER YES OR NO:*)
 205  FORMAT (T5,*CL*,T9,7(*AREA *,I1,2X))
 210  FORMAT (T5,* REENTER WHOLE LINE OF DATA...*/T5*=*)
 215  FORMAT (T5,I2,T9,7(F6.0,2X))
 220  FORMAT (T5,*RUN DATE:*,A10,2X,*CALC DATE:*,3(I2,1X),1X,I3,2X,
     $*PERSON:*,A4)
```

```
225   FORMAT (//T5,*ENTER SAMPLE LABEL(50 CHAR MAX):*)
230   FORMAT (T5,*ENTER NORMALIZING UNITS(10 CHAR MAX):*)
235   FORMAT (T5,*ENTER CORRESPONDING INJ VOLS(UL):*)
240   FORMAT (T5,*ENTER AREAS FOR EACH CLUSTER:*)
245   FORMAT (T5,*CHARACTERS ACCEPTED=*,6A10)
250   FORMAT (T5,*ENTER 5 CHARACTER ID:*)
255   FORMAT (///T5,*ERROR IN CHECSUBR, JANS=0....*)
260   FORMAT (/T5,*DATA ACCEPTED:*,T20,*TYPE*,T25,*NO INJ*,T35,
     $*NORM FAC*,T47,*FIN VOL*)
265   FORMAT (T20,I2,T25,I4,T35,E10.4,T47,E10.4)
270   FORMAT (/T5,*ENTER: TYPE, NO INJ, NORM FAC, FIN VOL(ML):*,/T5,*=*)
275   FORMAT (//T10,*vvvvvv ERROR IN JMPP,JMPP LT 0*)
280   FORMAT (T5,*VALUES ACCEPTED:*,6(F5.2,2X))
      END
```

```
      SUBROUTINE CLCAL
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
C     CALCULATE MI,FI,CI FOR SAMPLES- UNGROUPED
      DO 10 J=1,NOCLU
          SRM(J) = 0.0
          SRRM(J) = 0.0
          SRMPT(J) = 0.0
          SR(J) = 0.
          SRR(J) = 0.0
          SRPT(J) = 0.0
          DO 5 I=1,ISAMINJ
              SAMI(I,J) = (SAMAR(I,J)/RAVG(J))*(1000./VOLINJ(I))
              SRM(J) = SRM(J)+SAMI(I,J)
```

```
                SRRM(J) = SRRM(J)+SAMI(I,J)**2
                SCON(I,J) = (SAMI(I,J)/ANORM)*FINVOL
                SR(J) = SR(J)+SCON(I,J)
                SRR(J) = SRR(J)+SCON(I,J)**2
                IF (SAMAR(I,J).LT.2.) GO TO 5
                SRPT(J) = SRPT(J)+1.0
                SRMPT(J) = SRMPT(J)+1.0
 5           CONTINUE
 10      CONTINUE
         SAMCT = 0.0
         SAMMT = 0.0
         DO 15 J=1,NOCLU
             SAMCT = SAMCT+SR(J)/SRPT(J)
             SAMMT = SAMMT+SRM(J)/SRMPT(J)
 15      CONTINUE
         FTM = 0.0
         FTC = 0.0
         DO 20 J=1,NOCLU
             FRACM(J) = (SRM(J)/SRMPT(J))/SAMMT
             FRACC(J) = (SR(J)/SRPT(J))/SAMCT
             FTM = FTM+FRACM(J)
             FTC = FTC+FRACC(J)
 20      CONTINUE
C        OUTPUT THE MI,CI AND AVERAGES PER CLUSTER
         IF (TBLMI) 35,35,25
C
 25      CONTINUE
         WRITE (TOUT,75) LBL10
         CALL SAMLBL
         WRITE (TOUT,110)
         WRITE (TOUT,135)
         WRITE (TOUT,80) (I,I=1,5)
         DO 30 J=1,NOCLU
             WRITE (TOUT,85) J,SRM(J),SRRM(J),(SAMI(I,J),I=1,ISAMINJ)
 30      CONTINUE
 35      CONTINUE
         IF (TBLCI) 50,50,40
C
```

```
40    CONTINUE
      WRITE (TOUT,75) LBL5
      CALL SAMLBL
      WRITE (TOUT,105) SAMUNIT
      WRITE (TOUT,135)
      WRITE (TOUT,80) (I,I=1,5)
      DO 45 J=1,NOCLU
         WRITE (TOUT,85) J,SR(J),SRR(J),(SCON(I,J),I=1,ISAMINJ)
45    CONTINUE
50    CONTINUE
      WRITE (TOUT,75) LBL5
      CALL SAMLBL
      WRITE (TOUT,105) SAMUNIT
      WRITE (TOUT,90)
      WRITE (TOUT,135)
      TMSD = 0.0
      TCSD = 0.0
      DO 65 J=1,NOCLU
         AVGC = 0.0
         AVGM = 0.0
         IF (SRPT(J).GT.0.0) AVGC = SR(J)/SRPT(J)
         IF (SRMPT(J).GT.0.0) AVGM = SRM(J)/SRMPT(J)
         STDM = 0.0
         IF (SRMPT(J).LT.3.) GO TO 55
         STDM = SQRT((1./(SRMPT(J)-1.))*(SRRM(J)-(SRM(J)**2)/SRMPT(J))
     $   )
         TMSD = TMSD+STDM**2
55       CONTINUE
         STDC = 0.0
         IF (SRPT(J).LT.3) GO TO 60
         STDC = SQRT((1./(SRPT(J)-1.))*(SRR(J)-(SR(J)**2)/SRPT(J)))
         TCSD = TCSD+STDC**2
60       CONTINUE
         JY = CHL(J)
         CHLORO = FLOAT(JY)
         WRITE (TOUT,95) J,AVGM,STDM,AVGC,STDC,FRACC(J),FRACM(J),
     $   CHLORO
65    CONTINUE
```

```
      A = SQRT(TMSD)
      B = SQRT(TCSD)
      WRITE (TOUT,100) SAMMT,A,SAMCT,B,FTC,FTM
      JW = 1
      IEND = 21
      WRITE (SPA,115) IDCHAR,JDATE,IYR,MON,IDA,IDPER,JW,IEND,LBL14,
     $SAMNAME,LBL12,ANORM,LBL13,SAMUNIT
      DO 70 JW=1,20
            AVGM = SRM(JW)/SRMPT(JW)
            AVGC = SR(JW)/SRPT(JW)
            JV = JW+1
            WRITE (SPA,120) IDCHAR,JDATE,IYR,MON,IDA,IDPER,JV,IEND,AVGM,
     $      SRM(JW),SRRM(JW),SRMPT(JW),AVGC,SR(JW),SRR(JW),SRPT(JW),CHL
     $      (JW)
 70   CONTINUE
      WRITE (TOUT,125)
C     FORMATS
      RETURN
      WRITE (TOUT,130)
C
      RETURN
C
C
 75   FORMAT (/T15,A10,* DATA TABLE:*)
 80   FORMAT (T5,*CL*,T8,*SR*,T18,*SRR*,T28,5(2X,*INJ *,I1,3X))
 85   FORMAT (T5,I2,T8,E9.3,T18,E9.3,T28,5(E9.3,1X))
 90   FORMAT (T5,*CL*,T8,*AVG MI*,T18,*STDDEV MI*,T28,*AVG CI*,T38,
     $*STDDEV CI*,T48,*FRAC C*,T58,*FRAC M*,T68,*CHLORINES*)
 95   FORMAT (T5,I2,T8,7(E9.3,1X))
 100  FORMAT (/T5,*TT*,T8,7(E9.3,1X))
 105  FORMAT (T5,*CONC IS GM NCB PER *,A10)
 110  FORMAT (T5,*MI TABLE IS GRAM(S) NCB EXTRACTED*)
 115  FORMAT (T2,A5,I3,3I2,A3,2I2,A4,5A10,A4,E10.4,A4,A10)
 120  FORMAT (T2,A5,I3,3I2,A3,2I2,8E10.4,I2)
 125  FORMAT (T5,*MESSAGE...FINAL DATA TABLE IS WRITTEN   */T5,
     $*TEMPERORY FILE SPAREA....*)
 130  FORMAT (///T5,*ERROR IN CHECSUBR, JANS=0....*)
 135  FORMAT (T5,*CL=CLUSTER NUMBER*)
```

a 765-

END

D48

```
      SUBROUTINE TEND
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARODE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
      WRITE (TOUT,5) IDATE,MON,IDA,IYR,JDATE,IDPER
      CALL DISCON (15)
      CALL DISCON (16)
      RETURN
C
C
    5 FORMAT (T5,*RUN DATE:*,A10,2X,*CALC DATE:*,3(I2,1X),1X,I3,2X,
     $*PERSON:*,A4)
      END
```

```
SUBROUTINE JDATECN(IDA,MON,IYR,JDATE)
DIMENSION KSUM(12)
DATA KSUM/0,31,59,90,120,151,181,212,243,273,304,334/
ENTRY JULDATE
JSUM = 0
LEAP = 1
Y = FLOAT(IYR)
A = Y/4.0
IA = IFIX(A)
B = FLOAT(IA)
REM = A-B
IF (MON.GT.0) JSUM = 0
IF (MON.GT.1) JSUM = 31
IF (MON.GT.2) JSUM = 59
IF (MON.GT.3) JSUM = 90
IF (MON.GT.4) JSUM = 120
IF (MON.GT.5) JSUM = 151
IF (MON.GT.6) JSUM = 181
IF (MON.GT.7) JSUM = 212
IF (MON.GT.8) JSUM = 243
IF (MON.GT.9) JSUM = 273
IF (MON.GT.10) JSUM = 304
IF (MON.GT.11) JSUM = 334
IF (REM.LT.1.E-25.AND.MON.LT.2) LEAP = 0
IF (REM.GT.0.0) LEAP = 0
JDATE = JSUM+IDA+LEAP
RETURN
ENTRY DATEJUL
MON = 0
IDA = 0
LEAP = 1
X = FLOAT(IYR)
C = X/4.0
IC = IFIX(C)
Z = FLOAT(IC)
REM = C-Z
IF (JDATE.GT.0) MON = 1
IF (JDATE.GT.31) MON = 2
```

```
IF (JDATE.GT.59) MON = 3
IF (JDATE.GT.90) MON = 4
IF (JDATE.GT.120) MON = 5
IF (JDATE.GT.151) MON = 6
IF (JDATE.GT.181) MON = 7
IF (JDATE.GT.212) MON = 8
IF (JDATE.GT.243) MON = 9
IF (JDATE.GT.273) MON = 10
IF (JDATE.GT.304) MON = 11
IF (JDATE.GT.334) MON = 12
IF (REM.LT.1.E-25.AND.MON.LT.2) LEAP = 0
IF (REM.GT.0.0) LEAP = 0
IDA = JDATE-KSUM(MON)-LEAP
RETURN
END
```

```
      SUBROUTINE CHECK(LBL,JANS)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,IN,OUT
      INTEGER TIN,TOUT,SPA,SPB,IN,OUT
      ENTRY CKCORRT
    5 CONTINUE
      WRITE (TOUT,45)
      READ (TIN,35) IANS
      IF (IANS.EQ.2HNO) GO TO 10
      IF (IANS.EQ.2HYE) GO TO 15
      GO TO 5
C
   10 JANS = -1
      RETURN
   15 JANS = 1
      RETURN
      ENTRY CKOUT
   20 CONTINUE
      WRITE (TOUT,40) LBL
      READ (TIN,35) IANS
      IF (IANS.EQ.2HNO) GO TO 25
      IF (IANS.EQ.2HYE) GO TO 30
      GO TO 20
C
   25 JANS = -1
      RETURN
   30 JANS = 1
      RETURN
C
C
C
   35 FORMAT (A2)
   40 FORMAT (T5,*DO YOU WANT TO OUTPUT *,A10,* DATA TBL(YES/NO)↓*)
   45 FORMAT (/T5,*ANY (MORE) CORRECTIONS↓ ENTER YES OR NO:*)
      END
```

```
      SUBROUTINE SAMLBL
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRPM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
      WRITE (TOUT,5) IDATE,MON,IDA,IYR,JDATE,IDPER
      WRITE (TOUT,10) SAMNAME
      WRITE (TOUT,25) IDCHAR,ITYPE
      WRITE (TOUT,15) ANORM,SAMUNIT
      WRITE (TOUT,20) FINVOL
      RETURN
C
C
C
    5 FORMAT (T5,*RUN DATE:*,A10,2X,*CALC DATE:*,3(I2,1X),1X,I3,2X,
     $*PERSON:*,A4)
```

```
10    FORMAT (T5,*SAMPLE LABEL=*,5A10)                                        U 195
15    FORMAT (T5,*NORMALIZING FACTOR:*,E10.4,T40,*WITH UNITS *,A10)          U 200
20    FORMAT (T5,*FINAL VOL(ML):*,E10.4)                                     U 205
25    FORMAT (T5,*SAMPLE ID=*,A5,5X,*SAMPLE TYPE=*,I2)                       U 210
      END                                                                    U 215-
```

```
      SUBROUTINE FISET(CHL,JMPP)
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,IN,OUT
      INTEGER TIN,TOUT,SPA,SPB,IN,OUT
      INTEGER CHL(20),TAC(15),TBC(16)
      DIMENSION TA(15), TB(16)
      DATA TA/.064,.1032,.1043,.0834,.0637,.0971,.0831,.0902,.0650,.0435
     $,.0377,.0720,.0233,.0322,.0204/
      DATA TB/.064,.1032,.1043,.0834,.0637,.0971,.0831,.0318,.0584,.0650
     $,.0435,.0377,.0720,.0233,.0322,.0204/
      DATA TAC/2,3,3,4,4,4,5,5,5,6,5,6,7,7,7/
      DATA TBC/2,3,3,4,4,4,5,5,5,5,6,5,6,7,7,7/
      JMPP = 0
    5 CONTINUE
      WRITE (TOUT,50)
      READ (TIN,45) IANS
      IF (IANS.EQ.2HYE) GO TO 15
      IF (IANS.EQ.2HNO) GO TO 10
      GO TO 5
C
   10 CONTINUE
      JMPP = 0
      RETURN
   15 CONTINUE
      WRITE (TOUT,55)
      READ (TIN,45) IANS
      IF (IANS.EQ.2HYE) GO TO 20
      IF (IANS.EQ.2HNO) GO TO 30
      GO TO 15
C
   20 CONTINUE
      DO 25 I=1,15
           FI(I) = TA(I)
           CHL(I) = TAC(I)
   25 CONTINUE
      NOCLU = 15
      JMPP = 1
      RETURN
```

```
 30   CONTINUE
      WRITE (TOUT,60)
      READ (TIN,45) IANS
      IF (IANS.EQ.2HYE) GO TO 35
      IF (IANS.EQ.2HNO) GO TO 5
      GO TO 30
C
 35   CONTINUE
      DO 40 I=1,16
            FI(I) = TB(I)
            CHL(I) = TBC(I)
 40   CONTINUE
      JMPP = 1
      NOCLU = 16
      RETURN
C
C
C
 45   FORMAT (A2)
 50   FORMAT (/T5,*DO YOU WANT TO USE PRESET FI TABLES(YES/NO)↓*)
 55   FORMAT (/T5,*DO YOU WANT TO USE 15 CLUSTER FI TABLE(YES/NO)↓*)
 60   FORMAT (/T5,*DO YOU WANT TO USE 16 CLUSTER FI TABLE(YES/NO)↓*)
      END
```

```
      SUBROUTINE ARBIN
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),PDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAP(5,20),SP(20),SRP(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IOPER,IDATE,JDATE,MON,IDA,IYP,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HPI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNDR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
5     CONTINUE
      WRITE (TOUT,50)
      I = 0
10    CONTINUE
      DO 25 J=1,NOCLU
15          CONTINUE
            WRITE (TOUT,35) I,J
            READ (TIN,30) RIN
            IF (RIN(1).EQ.10HSSSSSSSSSS) GO TO 5
            IF (RIN(1).EQ.10HXXXXXXXXXX) GO TO 10
            NELM = KNVPT(RIN,1,80,ROUT,10)
```

```
      IF (NELM.NE.NOINJ) WRITE (TOUT,45)
      IF (NELM.NE.NOINJ) GO TO 15
      DO 20 K=1,NOINJ
         AREA(K,J) = FLOAT(IRCUT(K))
         IF (IROUT(K).LT.1.OR.IROUT(K).GT.999999) WRITE (TOUT,40)
         IF (IROUT(K).LT.1.OR.IROUT(K).GT.999999) GO TO 15
20    CONTINUE
25 CONTINUE
C  FORMATS
C
   RETURN
C
C
30 FORMAT (8A10)
35 FORMAT (T5,*ENTER INJ NO *,I2,*,CLUSTER NO *,I2,*:*)
40 FORMAT (T5,*ERROR, A VALUE IS NOT IN ACCEPTABLE RANGE-*)
45 FORMAT (T5,*ERROR-INCORRECT NO OF ENTRIES *)
50 FORMAT (T5,*ENTER PER CLUSTER:AREA-INJ 1,A-INJ 2,A-INJ 3,...*)
   END
```

```
      SUBROUTINE ARDIN(NINJ,NSTRT,NSTOP,SAREA)
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
 5    CONTINUE
      WRITE (TOUT,50)
      I = 0
 10   CONTINUE
      DO 25 J=NSTRT,NSTOP
 15       CONTINUE
          WRITE (TOUT,35) I,J
          READ (TIN,30) RIN
          IF (RIN(1).EQ.10HSSSSSSSSSS) GO TO 5
          IF (RIN(1).EQ.10HXXXXXXXXXX) GO TO 10
          NELM = KNVRT(RIN,1,80,ROUT,10)
```

```
      IF (NELM.NE.NOINJ) WRITE (TOUT,45)
      IF (NELM.NE.NOINJ) GO TO 15
      DO 20 K=1,NOINJ
         AREA(K,J) = FLOAT(IROUT(K))
         IF (IROUT(K).LT.1.OR.IROUT(K).GT.999999) WRITE (TOUT,40)
         IF (IROUT(K).LT.1.OR.IROUT(K).GT.999999) GO TO 15
 20   CONTINUE
 25   CONTINUE
C     FORMATS
C
      RETURN
C
C
 30   FORMAT (8A10)
 35   FORMAT (T5,*ENTER INJ NO *,I2,*,CLUSTER NO *,I2,*:*)
 40   FORMAT (T5,*ERROR, A VALUE IS NOT IN ACCEPTABLE RANGE*)
 45   FORMAT (T5,*ERROR-INCORRECT NO OF ENTRIES *)
 50   FORMAT (T5,*ENTER PER CLUSTER:AREA-INJ 1,A-INJ 2,A-INJ 3,...*)
      END
```

```
      SUBROUTINE RISET
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
    5 CONTINUE
      WRITE (TOUT,85)
      READ (TIN,80) RIN
      NELM = KNVRT(RIN,1,80,ROUT,3)
      IF (NELM.GT.1) WRITE (TOUT,110)
      IF (NELM.GT.1) GO TO 5
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.20) WRITE (TOUT,105)
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.20) GO TO 5
      NOCLU = IROUT(1)
      WRITE (TOUT,135) NOCLU
      CALL CKCORPT (LBL3,JANS)
```

```
      IF (JANS) 10,70,5
10    CONTINUE
      WRITE (TOUT,170)
      READ (TIN,80) RIN
      NELM = KNVRT(RIN,1,80,ROUT,1)
      IEX = IROUT(1)
      IF (IEX.GT.50.OR.IEX.LT.-3) GO TO 10
      FACTOR = 10.**IEX
C     BEGIN FASTCAL PART 2
      WRITE (TOUT,150)
      DO 20 I=1,NOCLU
15       CONTINUE
         WRITE (TOUT,155) I
         READ (TIN,80) RIN
         IF (RIN(1).EQ.10HSSSSSSSSSS.OR.RIN(1).EQ.10HXXXXXXXXXX)
     $    GO TO 10
         NELM = KNVRT(RIN,1,80,ROUT,5)
         IF (NELM.NE.2) WRITE (TOUT,110)
         IF (NELM.NE.2) GO TO 15
         IF (ROUT(1).LT.(1.E-3).OR.ROUT(1).GT.(1.E50)) WRITE (TOUT,90)
         IF (ROUT(1).LT.(1.E-3).OR.ROUT(1).GT.(1.E50)) GO TO 15
         IF (IROUT(2).LT.(2).OR.IROUT(2).GT.(7)) WRITE (TOUT,95)
         IF (IROUT(2).LT.(2).OR.IROUT(2).GT.(7)) GO TO 15
         RAVG(I) = ROUT(1)*FACTOR
         CHL(I) = IROUT(2)
20    CONTINUE
      GO TO 30
C
25    CONTINUE
      CALL CKOUT (LBL9,JANS)
      IF (JANS) 50,70,30
30    CONTINUE
      WRITE (TOUT,115) LBL9
      WRITE (TOUT,125) IDATE,MON,IDA,IYR,JDATE,IDPER
      WRITE (TOUT,160)
      DO 35 I=1,NOCLU
         WRITE (TOUT,140) I,RAVG(I),CHL(I)
35    CONTINUE
```

```
40    CONTINUE
      CALL CKCORRT (LBL9,JANS)
      IF (JANS) 25,70,45
45    CONTINUE
      WRITE (TOUT,120)
      READ (TIN,80) RIN
      NELM = KNVRT(RIN,1,80,ROUT,5)
      IF (NELM.NE.3) WRITE (TOUT,110)
      IF (NELM.NE.3) GO TO 45
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.NOCLU) WRITE (TOUT,90)
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.NOCLU) GO TO 45
      IF (ROUT(2).LT.(1.E-3).OR.ROUT(2).GT.(1.E50)) WRITE (TOUT,95)
      IF (ROUT(2).LT.(1.E-3).OR.ROUT(2).GT.(1.E50)) GO TO 45
      IF (IROUT(3).LT.1.OR.IROUT(3).GT.9) WRITE (TOUT,100)
      IF (IROUT(3).LT.1.OR.IROUT(3).GT.9) GO TO 45
      JA = IROUT(1)
      RAVG(JA) = ROUT(2)
      CHL(JA) = IROUT(3)
      GO TO 40
C
50    CONTINUE
      WRITE (TOUT,165)
      READ (TIN,80) RIN
      NELM = KNVRT(RIN,1,80,ROUT,3)
      IF (NELM.GT.1) WRITE (TOUT,110)
      IF (NELM.GT.1) GO TO 50
      IF (ROUT(1).LT.(1.E-3).OR.ROUT(1).GT.(1.E50)) WRITE (TOUT,105)
      IF (ROUT(1).LT.(1.E-3).OR.ROUT(1).GT.(1.E50)) GO TO 50
      DDEAVG = ROUT(1)
      WRITE (TOUT,130) DDEAVG
      CALL CKCORRT (LBL4,JANS)
      IF (JANS) 55,70,50
55    CONTINUE
      DO 60 I=1,NOCLU
          SI(I) = RAVG(I)/DDEAVG
60    CONTINUE
      WRITE (TOUT,115) LBL17
      WRITE (TOUT,125) IDATE,MON,IDA,IYR,JDATE,IDPER
```

```
      WRITE (TOUT,145)
      DO 65 J=1,NOCLU
           WRITE (TOUT,140) J,SI(J)
 65   CONTINUE
      RETURN
 70   CONTINUE
      WRITE (TOUT,75)
      CALL EXIT
C
C
C
 75   FORMAT (/T5,*ERROR-JANS=ZERO IN RISET*)
 80   FORMAT (8A10)
 85   FORMAT (T5,*ENTER NO OF CLUSTEPS(20 MAX):*)
 90   FORMAT (T5,*ERROR IN FIELD 1*)
 95   FORMAT (T5,*ERROR IN FIELD 2*)
 100  FORMAT (T5,*ERROR IN FIELD 3*)
 105  FORMAT (T5,*ERROR, A VALUE IS NOT IN ACCEPTABLE RANGEv*)
 110  FORMAT (T5,*ERROR-INCORRECT NO OF ENTRIES *)
 115  FORMAT (/T15,A10,* DATA TABLE:*)
 120  FORMAT (T5,* REENTER WHOLE LINE OF DATA...*/T5*=*)
 125  FORMAT (T5,*RUN DATE:*,A10,2X,*CALC DATE:*,3(I2,1X),1X,I3,2X,
     $*PERSON:*,A4)
 130  FORMAT (T5,*VALUE ENTERED=*,E10.4)
 135  FORMAT (T5,*VALUE ENTERED=*,I10)
 140  FORMAT (T5,I2,T12,E10.4,T26,I2)
 145  FORMAT (T5,*CL NO*,T12,*SI*)
 150  FORMAT (/T5,*ENTER RI TABLE BELOW*/T5,*RANGE:RI=1.E-3 TO 1.E50*/T5
     $,*CHLORINE NO= 2-7*)
 155  FORMAT (T5,* ENTER RI,CHLORINE NO FOR CLUSTER NO *,I2,*:*)
 160  FORMAT (T5,*CL NO*,T12,*RI*,T26,*NO OF CHLORINES*)
 165  FORMAT (T5,*ENTER AVG RODE:*)
 170  FORMAT (/T5,*ENTER VALUE OF EXPONET IN FORM -XX:*)
      END
```

```
      SUBROUTINE CHCAL
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
C     GROUP ACCORDING TO NO OF CHLORINES, SUM WITH IN INJ, AVG AMONG INJ
C     CONSOLIDATE TABLES AND OUTPUT THEM
      DO 10 J=1,NOCLU
          DO 5 I=1,ISAMINJ
              AVGM = 0.0
              AVGC = 0.0
              IF (SRPT(J).GT.0.0) AVGC = SR(J)/SRPT(J)
              IF (SRMPT(J).GT.0.0) AVGM = SRM(J)/SRMPT(J)
              IF (SAMAR(I,J).LT.2.0) SAMI(I,J) = AVGM
              IF (SAMAR(I,J).LT.2.0) SCON(I,J) = AVGC
    5     CONTINUE
```

```
10    CONTINUE
      DO 15 J=2,7
           SRPT(J) = FLOAT(ISAMINJ)
           SRMPT(J) = FLOAT(ISAMINJ)
           SRM(J) = 0.0
           SRRM(J) = 0.0
           SR(J) = 0.0
           SRR(J) = 0.0
15    CONTINUE
      DO 30 I=1,ISAMINJ
           DO 25 J=2,7
                CMI(J,I) = 0.0
                CSCON(J,I) = 0.0
                DO 20 K=1,NOCLU
                     IF (CHL(K).LT.(J+1).AND.CHL(K).GT.(J-1)) CMI(J,I) =
     $                CMI(J,I)+SAMI(I,K)
                     IF (CHL(K).LT.(J+1).AND.CHL(K).GT.(J-1)) CSCON(J,I)
     $                = CSCON(J,I)+SCON(I,K)
20              CONTINUE
25         CONTINUE
30    CONTINUE
      DO 40 I=2,7
           DO 35 J=1,ISAMINJ
                SRM(I) = SRM(I)+CMI(I,J)
                SRRM(I) = SRRM(I)+CMI(I,J)**2
                SR(I) = SR(I)+CSCON(I,J)
                SRR(I) = SRR(I)+CSCON(I,J)**2
35         CONTINUE
40    CONTINUE
      FTC = 0.0
      FTM = 0.0
      CSAMMT = 0.0
      CSAMCT = 0.0
      DO 55 I=2,7
           G1 = 0.0
           G2 = 0.0
           IF (SRMPT(I).LT.1.) GO TO 45
           G1 = SRM(I)/SRMPT(I)
```

```
45        CONTINUE
          IF (SRPT(I).LT.1.) GO TO 50
          G2 = SR(I)/SRPT(I)
50        CONTINUE
          CSAMMT = CSAMMT+G1
          CSAMCT = CSAMCT+G2
55    CONTINUE
      DO 70 I=2,7
          G3 = 0.0
          G4 = 0.0
          IF (SRMPT(I).LT.1.) GO TO 60
          G3 = SRM(I)/SRMPT(I)
60        CONTINUE
          IF (SRPT(I).LT.1.) GO TO 65
          G4 = SR(I)/SRPT(I)
65        CONTINUE
          FRACM(I) = G3/CSAMMT
          FRACC(I) = G4/CSAMCT
          FTM = FTM+FRACM(I)
          FTC = FTC+FRACC(I)
70    CONTINUE
      IF (TBLMN) 85,85,75
75    CONTINUE
      WRITE (TOUT,160) LBL15
      CALL SAMLBL
      WRITE (TOUT,200)
      WRITE (TOUT,220)
      WRITE (TOUT,165) (I,I=1,5)
      DO 80 I=2,7
          WRITE (TOUT,170) I,SRM(I),SRRM(I),(CMI(I,J),J=1,ISAMINJ)
80    CONTINUE
85    CONTINUE
      IF (TBLCN) 100,100,90
90    CONTINUE
      WRITE (TOUT,160) LBL16
      CALL SAMLBL
      WRITE (TOUT,195) SAMUNIT
      WRITE (TOUT,220)
```

```
      WRITE (TOUT,165) (I,I=1,5)
      DO 95 I=2,7
          WRITE (TOUT,170) I,SR(I),SRR(I),(CSCON(I,J),J=1,ISAMINJ)
 95   CONTINUE
 100  CONTINUE
      WRITE (TOUT,160) LBL16
      CALL SAMLBL
      WRITE (TOUT,195) SAMUNIT
      WRITE (TOUT,220)
      WRITE (TOUT,175)
      DO 115 I=2,7
          AVGC = 0.0
          AVGM = 0.0
          IF (SRPT(I).GT.0.0) AVGC = SR(I)/SRPT(I)
          IF (SRMPT(I).GT.0.0) AVGM = SRM(I)/SRMPT(I)
          STDC = 0.0
          STDM = 0.0
          IF (SRMPT(I).LT.(3.0)) GO TO 105
          VARM = (1./(SRMPT(I)-1.))*(SRRM(I)-(SRM(I)**2)/SRMPT(I))
          STDM = SQRT(VARM)
 105      CONTINUE
          IF (SRPT(I).LT.3.) GO TO 110
          VARC = (1./(SRPT(I)-1.))*(SRR(I)-(SR(I)**2)/SRPT(I))
          STDC = SQRT(VARC)
 110      CONTINUE
          RSD(I) = STDC
          CHLORO = FLOAT(I)
          WRITE (TOUT,180) I,AVGM,STDM,AVGC,STDC,FRACC(I),FRACM(I),
     $    CHLORO
 115  CONTINUE
C     WRITE FINAL DATA TABLE USING GROUPED DATA
C     WRITE FINAL DATA TABLE PLUS STATS ONTO FILE SPAREA
      DO 120 JW=2,7
          CDE(JW) = SR(JW)/SRPT(JW)
 120  CONTINUE
C     CALCULATION OF TOTAL PCB FROM GRPUPED DATA, ADD DOWM AVG ACROSS
      CTM = 0.0
      CTC = 0.0
```

```
      CTMSD = 0.0
      CTCSD = 0.0
      CTMPT = 0.0
      CTCPT = 0.0
      DO 130 I=1,ISAMINJ
           SRM(I) = 0.0
           SR(I) = 0.0
           DO 125 J=2,7
                SRM(I) = SRM(I)+CMI(J,I)
                SR(I) = SR(I)+CSCON(J,I)
125        CONTINUE
130   CONTINUE
      DO 135 I=1,ISAMINJ
           CTM = CTM+SRM(I)
           CTC = CTC+SR(I)
           CTMSD = CTMSD+SRM(I)**2
           CTCSD = CTCSD+SR(I)**2
           IF (SRM(I).GT.0.0) CTMPT = CTMPT+1.0
           IF (SR(I).GT.0.0) CTCPT = CTCPT+1.0
135   CONTINUE
      TM = 0.0
      TMSD = 0.0
      IF (CTMPT.GT.0.0) TM = CTM/CTMPT
      IF (CTMPT.GT.2.0) TMSD = SQRT((1./(CTMPT-1.))*(CTMSD-(CTM**2)/
     $CTMPT))
      TC = 0.0
      TCSD = 0.0
      IF (CTCPT.GT.0.0) TC = CTC/CTCPT
      IF (CTCPT.GT.2.0) TCSD = SQRT((1./(CTCPT-1.))*(CTCSD-(CTC**2)/
     $CTCPT))
      WRITE (TOUT,185) TM,TMSD,TC,TCSD,FTC,FTM
      JX = 1
      JY = 2
      WRITE (SPB,205) IDCHAR,JDATE,IYR,MON,IDA,IDPER,JX,JY,(CDE(I),I=2,7
     $),TC
      JX = 2
      WRITE (SPD,205) IDCHAR,JDATE,IYR,MON,IDA,IDPER,JX,JY,(RSD(I),I=2,7
     $),TCSD
```

```
      WRITE (TOUT,210)
 140  CONTINUE
      WRITE (TOUT,190)
      READ (TIN,155) IANS
      IF (IANS.EQ.2HNO) GO TO 150
      IF (IANS.EQ.2HYE) GO TO 145
      GO TO 140
C
 145  CONTINUE
      JUMP = 1
      RETURN
 150  CONTINUE
      JUMP = 0
      RETURN
      WRITE (TOUT,215)
C
C
C
 155  FORMAT (A2)
 160  FORMAT (/T15,A10,* DATA TABLE:*)
 165  FORMAT (T5,*CL*,T8,*SR*,T18,*SRR*,T28,5(2X,*INJ *,I1,3X))
 170  FORMAT (T5,I2,T8,E9.3,T18,E9.3,T28,5(E9.3,1X))
 175  FORMAT (T5,*CL*,T8,*AVG MI*,T18,*STDDEV MI*,T28,*AVG CI*,T38,
     $*STDDEV CI*,T48,*FRAC C*,T58,*FRAC M*,T68,*CHLORINES*)
 180  FORMAT (T5,I2,T8,7(E9.3,1X))
 185  FORMAT (/T5,*TT*,T8,7(E9.3,1X))
 190  FORMAT (//T5,*DO YOU WANT TO CALC VALUES FOR MORE SAMPLES↓↓↓*/T5,
     $*ENTER YES OR NO:*)
 195  FORMAT (T5,*CONC IS GM NCB PER *,A10)
 200  FORMAT (T5,*MI TABLE IS GRAM(S) NCB EXTRACTED*)
 205  FORMAT (T2,A5,I3,3I2,A3,2I2,8E10.4,I2)
 210  FORMAT (/T5,*AVG GROUP CN WRITTEN ON TEMPORARY FILE SPAREB*)
 215  FORMAT (///T5,*ERROR IN CHECSUBR, JANS=0....*)
 220  FORMAT (T5,*CL=NUMBER OF CHLORINES*)
      END
```

```
      SUBROUTINE ACRIN
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
    5 CONTINUE
      WRITE (TOUT,30)
      READ (TIN,15) RIN
      MAX = NOINJ+1
      NELM = KNVRT(RIN,1,80,ROUT,9)
      IF (NELM.NE.MAX) WRITE (TOUT,25)
      IF (NELM.NE.MAX) GO TO 5
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.NOCLU) WRITE (TOUT,20)
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.NOCLU) GO TO 5
      DO 10 I=1,NOINJ
         IF (IROUT(I+1).GT.999999.OR.IROUT(I+1).LT.1) WRITE (TOUT,20)
```

```
      IF (IROUT(I+1).GT.999999.OR.IROUT(I+1).LT.1) GO TO 5
      JF = IROUT(I)
      JG = I+1
      JH = IROUT(JG)
      AREA(I,JF) = FLOAT(JH)
      SAMAR(I,JF) = FLOAT(JH)
10    CONTINUE
      RETURN
C
15    FORMAT (8A10)
20    FORMAT (T5,*ERROR - A VALUE IS NOT IN ACCEPTABLE RANGE,REENTER*)
25    FORMAT (T5,*ERROR - INCORRECT NUMBER OF ENTRIES*)
30    FORMAT (T5,* REENTER WHOLE OF DATA.....*,/T5,*=*)
      END
```

```
      SUBROUTINE FORMIN
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
    5 CONTINUE
      WRITE (TOUT,20)
      READ (TIN,25) FORM
      IF (FORM.LT.1.0.OR.FORM.GT.2.0) GO TO 5
      WRITE (TOUT,15) FORM
      CALL CKCORPT (LBL3,JANS)
      IF (JANS) 10,5,5
   10 CONTINUE
      RETURN
C
   15 FORMAT (T5,*VALUE ACCEPTED=*,F3.0)
```

```
20   FORMAT (/T5,*ENTER AREA INPUT FORM CODE *,/T5,*ENTER 1 FOR LONG FO    AB 195
    $RM, 2 FOR SHORT FORM*,/T5*=*)                                          AB 200
                                                                            AB 205
25   FORMAT (F1.0)                                                          AB 210-
     END
```

```
      SUBROUTINE TBLSET
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SPDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
    5 CONTINUE
      WRITE (TOUT,20)
      READ (TIN,25) RIN
      NELM = KNVRT(RIN,1,80,ROUT,5)
      DO 10 I=1,4
         IF (ROUT(I).LT.-1.0.OR.ROUT(I).GT.1.0) GO TO 5
   10 CONTINUE
      TBLMI = ROUT(1)
      TBLCI = ROUT(2)
      TBLMN = ROUT(3)
      TBLCN = ROUT(4)
```

```
      WRITE (TOUT,30) TBLMI,TBLCI,TBLMN,TBLCN
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 15,15,5
   15 CONTINUE
      RETURN
C
   20 FORMAT (/T5,*ENTER TABLE OUTPUT CODES:-1.0 TABLE NOT LISTED,*,/T30
     $,*1.0 TABLE IS LISTED*,/T5,*ENTER IN ORDER- TBLMI, TBLCI,TBLMN,TBL
     $CN:*)
   25 FORMAT (8A10)
   30 FORMAT (/T5,*VALUES ENTERED= *,4(F4.1,2X))
      END
```

```
      SUBROUTINE STDRECL
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
      DO 5 I=1,5
          SAMNAME(I) = STDNAM(I)
5     CONTINUE
      ENCODE (5,15,IDCHAR)
      ENCODE (10,20,SAMUNIT)
      ITYPE = 99
      ISAMINJ = NOINJ
      ANORM = 1.0
      FINVOL = 1.0
      SHIFT = 1.0
      DO 10 K=1,NOINJ
```

```
         VOLINJ(K) = STDINJ(K)
 10   CONTINUE
      RETURN
C
 15   FORMAT (5HSTDMX)
 20   FORMAT (10H ML       )
      END
```

```
      SUBROUTINE EACHPCB
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SPR(20)
      COMMON /SET7/ SPPT(20),SRM(20),SPRM(20),SPMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
      COMMON /BL1/ RATIO(3,5,20),STDCL(3,5,20)
      DIMENSION NJ(5)
      INTEGER TBC(16)
      DIMENSION ITAX(10)
      DATA TBC/2,3,3,4,4,4,5,5,5,5,6,5,6,7,7,7/
      DATA RATIO/300*0.0/
      CALL RPCB (NINJ)
      NOCLU = 16
      DO 5 I=1,NOCLU
    5 CHL(I) = TBC(I)
      WRITE (TOUT,45)
```

```
      WRITE (TOUT,55)
10    CONTINUE
      WRITE (TOUT,60)
      READ (TIN,75) RIN
      NELM = KNVPT(RIN,1,80,ROUT,5)
      NOSTD = NELM
      IF (NELM.LT.1.OR.NELM.GT.3) WRITE (TOUT,65)
      IF (NELM.LT.1.OR.NELM.GT.3) GO TO 10
      DO 15 I=1,NOSTD
            ITAX(I) = IROUT(I)
            IF (IROUT(I).LT.1.OR.IROUT(I).GT.3) WRITE (TOUT,70)
            IF (IROUT(I).LT.1.OR.IROUT(I).GT.3) GO TO 10
15    CONTINUE
      WRITE (TOUT,50) (ITAX(I),I=1,NOSTD)
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 20,20,10
20    CONTINUE
      INJTT = 0
      DO 25 I=1,NOSTD
            IF (ITAX(I).EQ.1) CALL RPCB42 (NINJ)
            IF (ITAX(I).EQ.2) CALL RPCB54 (NINJ)
            IF (ITAX(I).EQ.3) CALL RPCB60 (NINJ)
            NJ(I) = NINJ
            INJTT = INJTT+NJ(I)
25    CONTINUE
      DO 40 K=1,NOCLU
            SR(K) = 0.0
            SRR(K) = 0.0
            SRPT(K) = 0.0
            DO 35 I=1,NOSTD
                  NEND = NJ(I)
                  DO 30 J=1,NEND
                        IF (RATIO(I,J,K).LE.0.0) GO TO 30
                        SR(K) = SR(K)+RATIO(I,J,K)
                        SRR(K) = SRR(K)+RATIO(I,J,K)**2
                        SRPT(K) = SRPT(K)+1.0
30                CONTINUE
35          CONTINUE
```

```
 40   CONTINUE                                                              AE 385
      RETURN                                                                AE 390
C                                                                           AE 395
C                                                                           AE 400
 45   FORMAT (/T5,*THIS OPTION REQUIRES THAT ALL THREE INDIVIDUAL PCB*,/    AE 405
     $T5,*STANDARDS BE USED. USE EACH STD ID NO  ONLY ONCE.  *,/T5,         AE 410
     $*THE NUMBER OF CLUSTERS IS SIXTEEN(16).*)                             AE 415
 50   FORMAT (T5,*VALUES ACCEPTED= *,10(I4,1X))                             AE 420
 55   FORMAT (/T5,*ENTER STANDARD ID NO(S) THAT WERE USED:*,/T7,            AE 425
     $*STD ID NO*,T25,*PCB STD*,/T11,*1*,T25,*AROCLOR 1242*,/T11,*2*,T25    AE 430
     $,*AROCLOR 1254*,/T11,*3*,T25,*AROCLOR 1260*)                          AE 435
 60   FORMAT (/T5,*ENTER ID NO(S):*)                                        AE 440
 65   FORMAT (/T5,*MAXIMUM OF 3 STDS ALLOWED,REENTER*)                      AE 445
 70   FORMAT (/T5,*ONE OF STD ID NOS IS NOT ALLOWED, REENTER DATA*)         AE 450
 75   FORMAT (8A10)                                                         AE 455
      END                                                                   AE 460-
```

```
      SUBROUTINE RPCB(NINJ)
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
      COMMON /BL1/ RATIO(3,5,20),STDCL(3,5,20)
      DIMENSION FRAC42(7), FRAC54(10), FRAC60(11)
      DATA FRAC42/0.1408,0.1631,0.3224,0.1077,0.1159,0.1045,0.0365/
      DATA FRAC54/0.0942,0.0364,0.1410,0.1679,0.0843,0.0968,0.1390,0.
     $0642,0.0699,0.0943/
      DATA FRAC60/0.0320,0.0442,0.0439,0.0568,0.1027,0.1188,0.0797,0.
     $2047,0.1198,0.1087,0.0856/
      DATA A42/10HPCB A-1242/,A54/10HPCB A-1254/,A60/10HPCB A-1260/
      NINJ = 0
      RETURN
      ENTRY RPCB42
```

```
      WRITE (TOUT,120) A42
      NDEL = 0
      NSTRT = 1
      NSTOP = 7
      IX = 1
      DO 5 I=NSTRT,NSTOP
           J = I-NDEL
           FI(I) = FRAC42(J)
  5   CONTINUE
      GO TO 20
C
      ENTRY RPCB54
      WRITE (TOUT,120) A54
      NDEL = 3
      NSTRT = 4
      NSTOP = 13
      IX = 2
      DO 10 I=NSTRT,NSTOP
           J = I-NDEL
           FI(I) = FRAC54(J)
 10   CONTINUE
      GO TO 20
C
      ENTRY RPCB60
      WRITE (TOUT,120) A60
      NDEL = 5
      NSTRT = 6
      NSTOP = 16
      IX = 3
      DO 15 I=NSTRT,NSTOP
           J = I-NDEL
           FI(I) = FRAC60(J)
 15   CONTINUE
 20   CONTINUE
      CALL FICK (NSTRT,NSTOP)
      CALL STOLB
      NINJ = NOINJ
C      ENTER STANDARD AREAS
```

```
      WRITE (TOUT,85)
      WRITE (TOUT,80)
      IF (FORM.EQ.2.0) CALL ARDIN (NINJ,NSTRT,NSTOP,SAREA)
      IF (FORM.NE.2.0) CALL ARCIN (NINJ,NSTRT,NSTOP,SAREA)
      GO TO 30
C      CHECK AND CORRECT STANDARD AREAS
   25 CONTINUE
      CALL CKOUT (LBL2,JANS)
      IF (JANS) 55,50,30
   30 CONTINUE
      WRITE (TOUT,90) LBL2
      WRITE (TOUT,105) IDATE,MON,IDA,IYR,JDATE,IDPER
      WRITE (TOUT,110) LBL8,STDNAM
      WRITE (TOUT,115)
      WRITE (TOUT,95) (I,I=1,7)
      DO 35 I=NSTRT,NSTOP
           WRITE (TOUT,100) I,(AREA(J,I),J=1,NOINJ)
   35 CONTINUE
   40 CONTINUE
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 25,50,45
   45 CONTINUE
      CALL ACRIN
      GO TO 40
C
   50 CONTINUE
      WRITE (TOUT,75)
   55 CONTINUE
      DO 60 J=1,NOINJ
           DO 60 K=NSTRT,NSTOP
                STDCL(IX,J,K) = AREA(J,K)
   60 CONTINUE
      DO 70 J=1,NOINJ
           TMASS = STDINJ(J)*CONC(J)*(0.001)
           DO 65 K=NSTRT,NSTOP
                FRACMS = FI(K)*TMASS
                RATIO(IX,J,K) = STDCL(IX,J,K)/FRACMS
   65      CONTINUE
```

```
70    CONTINUE
      RETURN
C
75    FORMAT (T5,*ERROR IN CHECK,JANS=0 IN RPCB2*)
80    FORMAT (T5,*ENTER ONLY INTEGERS FOR AREAS,MIN=1,MAX=999999...*)
85    FORMAT (T5,*ENTER STD RAW AREAS TABLE:*)
90    FORMAT (/T15,A10,* DATA TABLE:*)
95    FORMAT (T5,*CL*,T9,7(*AREA *,I1,2X))
100   FORMAT (T5,I2,T9,7(F6.C,2X))
105   FORMAT (T5,*RUN DATE:*,A10,2X,*CALC DATE:*,3(I2,1X),1X,I3,2X,
     $*PERSON:*,A4)
110   FORMAT (T5,A10,* NAMES:*,5A10)
115   FORMAT (T5,*CL=CLUSTER NO*)
120   FORMAT (T5,*ENTER DATA ONLY FOR STANDARD *,A10)
      END
```

AD-A061 987 WASHINGTON UNIV SEATTLE DEPT OF OCEANOGRAPHY F/G 13/3
AQUATIC DISPOSAL FIELD INVESTIGATIONS DUWAMISH WATERWAY DISPOSA--ETC(U)
JAN 78 S P PAVLOU, R N DEXTER, W HOM DACW39-76-C-0167
UNCLASSIFIED WES-TR-D-77-24-APP-E NL

6 OF 6
AD
A061987

END
DATE
FILMED
2-79
DDC

```
      SUBROUTINE STDLB
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STDNAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCR/
      INTEGER CHL
C      ENTER STANDARD PCB DATA
    5 CONTINUE
      WRITE (TOUT,155)
      WRITE (TOUT,75)
      READ (TIN,70) RIN
      NELM = KNVRT(RIN,1,80,ROUT,3)
      IF (NELM.GT.1) WRITE (TOUT,130)
      IF (NELM.GT.1) GO TO 5
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.7) WRITE (TOUT,115)
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.7) GO TO 5
      NOINJ = IROUT(1)
```

```
      WRITE (TOUT,150) NOINJ
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 10,60,5
C
 10   CONTINUE
      WRITE (TOUT,80)
      READ (TIN,70) (STDNAM(I),I=1,6)
 15   CONTINUE
      WRITE (TOUT,85)
      READ (TIN,70) RIN
      NELM = KNVRT(RIN,1,80,ROUT,9)
      IF (NELM.NE.NOINJ) WRITE (TOUT,90)
      IF (NELM.NE.NOINJ) GO TO 15
      DO 20 I=1,NELM
            CONC(I) = ROUT(I)
            IF (CONC(I).EQ.1.0.AND.I.LT.2) WRITE (TOUT,100)
            IF (CONC(I).EQ.1.0.AND.I.LT.2) GO TO 15
            IF (CONC(I).EQ.1.0.AND.I.GT.1) CONC(I) = CONC(I-1)
            IF (CONC(I).LT.1.E-25.OR.CONC(I).GT.1.0) WRITE (TOUT,115)
            IF (CONC(I).LT.1.E-25.OR.CONC(I).GT.1.0) GO TO 15
 20   CONTINUE
 25   CONTINUE
      WRITE (TOUT,95)
      READ (TIN,70) RIN
      NELM = KNVRT(RIN,1,80,STDINJ,8)
      IF (NELM.NE.NOINJ) WRITE (TOUT,90)
      IF (NELM.NE.NOINJ) GO TO 25
      DO 30 I=1,NOINJ
            IF (STDINJ(I).GT.9.99.OR.STDINJ(I).LT.0.01) WRITE (TOUT,115)
            IF (STDINJ(I).GT.9.99.OR.STDINJ(I).LT.0.01) GO TO 25
 30   CONTINUE
C     CHECK AND CORRECT CONC AND STD INJ VOL DATA
 35   CONTINUE
      CALL CKOUT (LBL8,JANS)
      IF (JANS) 65,60,40
C
 40   CONTINUE
      WRITE (TOUT,135) LBL8
```

```
      WRITE (TOUT,145) IDATE,MON,IDA,IYR,JDATE,IDPER
      WRITE (TOUT,165) LBL2,STDNAM
      WRITE (TOUT,120)
      DO 45 I=1,NOINJ
           WRITE (TOUT,125) I,STDINJ(I),CONC(I)
 45   CONTINUE
 50   CONTINUE
      CALL CKCORRT (LBL3,JANS)
      IF (JANS) 35,60,55
C
 55   CONTINUE
      WRITE (TOUT,140)
      READ (TIN,70) RIN
      NELM = KNVRT(RIN,1,80,ROUT,4)
      IF (NELM.NE.3) WRITE (TOUT,130)
      IF (NELM.NE.3) GO TO 55
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.NOINJ) WRITE (TOUT,100)
      IF (IROUT(1).LT.1.OR.IROUT(1).GT.NOINJ) GO TO 55
      IF (ROUT(2).GT.9.99.OR.ROUT(2).LT.0.01) WRITE (TOUT,105)
      IF (ROUT(2).GT.9.99.OR.ROUT(2).LT.0.01) GO TO 55
      IF (ROUT(3).GT.1.0.OR.ROUT(3).LT.1.E-25) WRITE (TOUT,110)
      IF (ROUT(3).GT.1.0.OR.ROUT(3).LT.1.E-25) GO TO 55
      JC = IROUT(1)
      STDINJ(JC) = ROUT(2)
      CONC(JC) = ROUT(3)
      GO TO 50
C
 60   CONTINUE
      WRITE (TOUT,160)
 65   RETURN
C
C
C
 70   FORMAT (8A10)
 75   FORMAT (T5,*ENTER NO OF INJECTIONS(7 MAX):*)
 80   FORMAT (T5,*ENTER PCB STD NAMES(50 CHAR MAX):*)
 85   FORMAT (T5,*ENTER STD CONC FOR EACH INJ IN FORM CONC,CONC,...*/T5,
     $*ENTER 1.  IF YOU WANT PRIOR VALUE*/T5,*ENTER DATA:*)
```

```
90    FORMAT (T5,*ENTER A CORRESPONDING CONC FOR EACH INJECTION:*)
95    FORMAT (T5,*ENTER CORRESPONDING INJ VOL(UL):*)
100   FORMAT (T5,*ERROR IN FIELD 1*)
105   FORMAT (T5,*ERROR IN FIELD 2*)
110   FORMAT (T5,*ERROR IN FIELD 3*)
115   FORMAT (T5,*ERROR, A VALUE IS NOT IN ACCEPTABLE RANGE∨*)
120   FORMAT (/T5,*NO*,T12,*INJ VOL*,T24,*CONC*,T34,*AREA*,T42,*PDDE*)
125   FORMAT (T5,I2,T12,F5.2,T22,E10.4,T34,F6.0,T42,E10.4)
130   FORMAT (T5,*ERROR-INCORRECT NO OF ENTRIES *)
135   FORMAT (/T15,A10,* DATA TABLE:*)
140   FORMAT (T5,* REENTER WHOLE LINE OF DATA...*/T5*=*)
145   FORMAT (T5,*RUN DATE:*,A10,2X,*CALC DATE:*,3(I2,1X),1X,I3,2X,
     $*PERSON:*,A4)
150   FORMAT (T5,*VALUE ENTERED=*,I10)
155   FORMAT (/T5,*ENTER PCB STANDARD DATA:*)
160   FORMAT (///T5,*ERROR IN CHECSUBR, JANS=0....*)
165   FORMAT (T5,A10,* NAMES:*,5A10)
      END
```

```
      SUBROUTINE ARCIN(NINJ,NSTPT,NSTOP,SAREA)
      DIMENSION IROUT(10)
      COMMON /SET1/ RIN(8),ROUT(10)
      COMMON /DEVICE/ TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      EQUIVALENCE (IROUT,ROUT)
      INTEGER TIN,TOUT,SPA,SPB,SPC,SPD,IN,OUT
      COMMON /SET2/ NOCLU,FI(20),NAMPCB(6)
      COMMON /SET3/ NOINJ,CONC(7),AREA(7,20),STDINJ(8)
      COMMON /SET4/ NODDE,CDE(7),ARDDE(50),DDEINJ(50),NAMDDE(5)
      COMMON /SET5/ DDECON(50),RDDE(50)
      COMMON /SET6/ SAMNAME(5),VOLINJ(5),SAMAR(5,20),SR(20),SRR(20)
      COMMON /SET7/ SRPT(20),SRM(20),SRRM(20),SRMPT(20)
      COMMON /SET8/ FRACC(20),FRACM(20)
      COMMON /SET9/ STONAM(5),SAMI(7,20),SCON(7,20),R(7,20)
      COMMON /SET10/ CMI(8,5),CSCON(8,5)
      COMMON /SET11/ IDCHAR,ITYPE,IDPER,IDATE,JDATE,MON,IDA,IYR,FINVOL
      COMMON /SET12/ ANORM,SAMUNIT
      COMMON /SET13/ SI(20),JUMP,RAVG(20),RSD(20)
      COMMON /SET14/ DDEAVG,DDESTD,SRDDE,SRRDDE,SRDDEPT,EPCB,FORM
      COMMON /SET15/ TBLCI,TBLMI,TBLCN,TBLMN,SHIFT
      COMMON /SET16/ CHL(20),ISAMINJ
      DATA LBL1/3HDDE/,LBL2/8HSTD AREA/,LBL3/3HXXX/,LBL4/4HRDDE/
      DATA LBL5/8HSAM CONC/,LBL6/2HFI/,LBL7/8HSAM AREA/,LBL8/8HSTD CONC/
      DATA LBL9/2HRI/,LBL10/2HMJ/,LBL11/7HSAM INJ/,LBL12/4HNOR=/
      DATA LBL13/4HUNT=/,LBL14/4HLBL=/,LBL15/9HGROUP MJN/
      DATA LBL16/10HGROUP CN  /,LBL17/2HSI/,LBL18/5HSTDCB/
      INTEGER CHL
5     CONTINUE
      DO 30 I=1,NINJ
10       CONTINUE
         DO 25 J=NSTRT,NSTOP
15          CONTINUE
            AREA(I,J) = 0.0
            WRITE (TOUT,40) I,J
            READ (TIN,35) RIN
            IF (RIN(1).EQ.10HSSSSSSSSSS) GO TO 5
            IF (RIN(1).EQ.10HXXXXXXXXXX.AND.J.EQ.1.AND.I.NE.1) I = I
     $      -1
```

```
      IF (RIN(1).EQ.10HXXXXXXXXXX.AND.J.EQ.1.AND.I.NE.1)
     $  GO TO 10
      IF (RIN(1).EQ.10HXXXXXXXXXX) GO TO 10
      NELM = KNVRT(RIN,1,80,ROUT,10)
      IF (NELM.GT.10.OR.NELM.LT.1) WRITE (TOUT,50)
      IF (NELM.GT.10.OR.NELM.LT.1) GO TO 15
      DO 20 K=1,NELM
           AREA(I,J) = AREA(I,J)+FLOAT(IROUT(K))
           IF (IROUT(K).LT.1.OR.IROUT(K).GT.999999) WRITE
     $     (TOUT,45)
           IF (IROUT(K).LT.1.OR.IROUT(K).GT.999999) GO TO 15
   20 CONTINUE
   25      CONTINUE
   30 CONTINUE
C     FORMATS
C
      RETURN
C
C
   35 FORMAT (8A10)
   40 FORMAT (T5,*ENTER INJ NO *,I2,*,CLUSTER NO *,I2,*:*)
   45 FORMAT (T5,*ERROR, A VALUE IS NOT IN ACCEPTABLE RANGE-*)
   50 FORMAT (T5,*ERROR-INCORRECT NO OF ENTRIES *)
      END
```

```
UW-CDC INTERCOM 4.5
ATE  04/12/77
IME  09.06.36.
LEASE ENTER LOGIN
LOGIN,9XK91J01,CHEMIN,5

04/12/77   LOGGED IN AT  09.07.00.
           WITH USER-ID 8S
           EQUIP/PORT 13/041
COMMAND- WIDTH,80
COMMAND- ETL,20
COMMAND- ATTACH,SHRT,LINKED,ID=CHEMIN
 PF CYCLE NO. = 026
COMMAND- SHRT
   ENTER RUN DATE(10 CHAR MAX):  6 APR 77
   CHARACTERS ACCEPTED= 6 APR 77

   ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO
   ENTER 3 CHAR PERSONAL INITIALS: RNBD
   CHARACTERS ACCEPTED=RND

   ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO

   ENTER AREA INPUT FORM CODE
   ENTER 1 FOR LONG FORM, 2 FOR SHORT FORM
   #1
   VALUE ACCEPTED=  1

   ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO
   ENTER 1 IF YOU WANT TO ENTER RI ONLY,
   ENTER 2  FOR MIXED PCB STDS,
   ENTER 3 FOR INDIVIDUAL PCB STDS....#2
   VALUE ACCEPTED=2
```

```
ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO

DO YOU WANT TO USE PRESET FI TABLES(YES/NO)?YE

DO YOU WANT TO USE 15 CLUSTER FI TABLE(YES/NO)?NO

DO YOU WANT TO USE 16 CLUSTER FI TABLE(YES/NO)?YE

            FI          DATA TABLE:
RUN DATE: 6 APR 77    CALC DATE: 4 12 77   102   PERSON:RND
CL=CLUSTER NUMBER

CL NO    FI           NO CHLORINES
 1     6.4000E-02      2
 2     1.0320E-01      3
 3     1.0430E-01      3
 4     8.3400E-02      4
 5     6.3700E-02      4
 6     9.7100E-02      4
 7     8.3100E-02      5
 8     3.1800E-02      5
 9     5.8400E-02      5
10     6.5000E-02      5
11     4.3500E-02      6
12     3.7700E-02      5
13     7.2000E-02      6
14     2.3300E-02      7
15     3.2200E-02      7
16     2.0400E-02      7

ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO

DO YOU WANT TO OUTPUT FI          DATA TABLE?
ENTER YES OR NO: NO
```

```
.....SUM OF FI,S = 9.8310E-01

ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO

ENTER PCB STANDARD DATA:
ENTER NO OF INJECTIONS(7 MAX): 3
VALUE ENTERED=         3

ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO
ENTER PCB STD NAMES(50 CHAR MAX): MIXED-A
ENTER STD CONC FOR EACH INJ IN FORM CONC,CONC,...
ENTER 1.  IF YOU WANT PRIOR VALUE
ENTER DATA: 1.68E-6,1.,1.
ENTER CORRESPONDING INJ VOL(UL): 2.1 2.1 2.09

DO YOU WANT TO OUTPUT STD CONC   DATA TABLE?
ENTER YES OR NO: YE

          STD CONC    DATA TABLE:
RUN DATE: 6 APR 77   CALC DATE: 4 12 77  102  PERSON:RND
STD AREA   NAMES:MIXED-A

NO      INJ VOL      CONC        AREA     RDDE
 1       2.10     1.6800E-06
 2       2.10     1.6800E-06
 3       2.09     1.6800E-06

ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO

DO YOU WANT TO OUTPUT STD CONC   DATA TABLE?
ENTER YES OR NO: NO
ENTER STD RAW AREAS TABLE:
ENTER ONLY INTEGERS FOR AREAS, MIN=1,MAX=999999 !!!
 MAX NO ENTRIES ACCEPTED PER CLUSTER=10:
```

```
ENTER INJ NO  1,CLUSTER NO  1: 971 5083
ENTER INJ NO  1,CLUSTER NO  2: 10044
ENTER INJ NO  1,CLUSTER NO  3: 33769
ENTER INJ NO  1,CLUSTER NO  4: 21572
ENTER INJ NO  1,CLUSTER NO  5: 18110
ENTER INJ NO  1,CLUSTER NO  6: 33681
ENTER INJ NO  1,CLUSTER NO  7: 28494
ENTER INJ NO  1,CLUSTER NO  8: 11883
ENTER INJ NO  1,CLUSTER NO  9: 26198
ENTER INJ NO  1,CLUSTER NO 10: 28721
ENTER INJ NO  1,CLUSTER NO 11: 19795
ENTER INJ NO  1,CLUSTER NO 12: 20281
ENTER INJ NO  1,CLUSTER NO 13: 40610
ENTER INJ NO  1,CLUSTER NO 14: 12787 5781
ENTER INJ NO  1,CLUSTER NO 15: 19286
ENTER INJ NO  1,CLUSTER NO 16: 15997
ENTER INJ NO  2,CLUSTER NO  1: 794 4494
ENTER INJ NO  2,CLUSTER NO  2: 9123
ENTER INJ NO  2,CLUSTER NO  3: 32025
ENTER INJ NO  2,CLUSTER NO  4: 20038
ENTER INJ NO  2,CLUSTER NO  5: 16473
ENTER INJ NO  2,CLUSTER NO  6: 31872
ENTER INJ NO  2,CLUSTER NO  7: 26479
ENTER INJ NO  2,CLUSTER NO  8: 10410
ENTER INJ NO  2,CLUSTER NO  9: 24477
ENTER INJ NO  2,CLUSTER NO 10: 27080
ENTER INJ NO  2,CLUSTER NO 11: 18121
ENTER INJ NO  2,CLUSTER NO 12: 18624
ENTER INJ NO  2,CLUSTER NO 13: 37465
ENTER INJ NO  2,CLUSTER NO 14: 11433 5063
ENTER INJ NO  2,CLUSTER NO 15: 18475
ENTER INJ NO  2,CLUSTER NO 16: 15911
ENTER INJ NO  3,CLUSTER NO  1: 673 4399
ENTER INJ NO  3,CLUSTER NO  2: 8916
ENTER INJ NO  3,CLUSTER NO  3: 31605
ENTER INJ NO  3,CLUSTER NO  4: 19927
```

```
ENTER INJ NO  3,CLUSTER NO  5: 16252
ENTER INJ NO  3,CLUSTER NO  6: 31214
ENTER INJ NO  3,CLUSTER NO  7: 26527
ENTER INJ NO  3,CLUSTER NO  8: 9916
ENTER INJ NO  3,CLUSTER NO  9: 24191
ENTER INJ NO  3,CLUSTER NO 10: 27142
ENTER INJ NO  3,CLUSTER NO 11: 17987
ENTER INJ NO  3,CLUSTER NO 12: 18351
ENTER INJ NO  3,CLUSTER NO 13: 37248
ENTER INJ NO  3,CLUSTER NO 14: 10763 4874
ENTER INJ NO  3,CLUSTER NO 15: 18194
ENTER INJ NO  3,CLUSTER NO 16: 16075
```

STD AREA DATA TABLE:

RUN DATE: 6 APR 77 CALC DATE: 4 12 77 102 PERSON:RND

STD CONC NAMES:MIXED-A

CL=CLUSTER NUMBER

CL	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7
1	6054	5288	5072				
2	10044	9123	8916				
3	33769	32025	31605				
4	21572	20038	19927				
5	18110	16473	16252				
6	33681	31872	31214				
7	28494	26479	26527				
8	11883	10410	9916				
9	26198	24477	24191				
10	28721	27050	27142				
11	19795	18121	17987				
12	20281	18624	18351				
13	40610	37465	37248				
14	18568	16496	15637				
15	19286	18475	18194				
16	15997	15911	16075				

ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO

```
DO YOU WANT TO OUTPUT STD AREA   DATA TABLE?
ENTER YES OR NO: NO

ENTER DDE STANDARD DATA:
ENTER DDE STD NAMES(50 CHAR MAX): DDE-A
ENTER NO OF STD DDE CONC USED(7 MAX): 1
VALUE ENTERED=          1

ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO
ENTER DDE STD CONC NO  1: 3.47E-7
ENTER NO OF INJ (50 MAX): 13
VALUE ENTERED=         13

ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO
ENTER STD DDE CONC DATA IN FORM:STD NO,INJVOL,AREA
STD NO AND AREA =INTEGER,INJ VOL = REAL
ENTER DATA FOR DDE INJ NO  1: 1 2.02 118836
ENTER DATA FOR DDE INJ NO  2: 1 2.11 120038
ENTER DATA FOR DDE INJ NO  3: 1 2.11 125096
ENTER DATA FOR DDE INJ NO  4: 1 2.1 126598
ENTER DATA FOR DDE INJ NO  5: 1 2.02 117530
ENTER DATA FOR DDE INJ NO  6: 1 1.93 111914
ENTER DATA FOR DDE INJ NO  7: 1 1.90 110694
ENTER DATA FOR DDE INJ NO  8: 1 1.99 108718
ENTER DATA FOR DDE INJ NO  9: 1 2.10 114524
ENTER DATA FOR DDE INJ NO 10: 1 2.00 115090
ENTER DATA FOR DDE INJ NO 11: 1 2.00 115150
ENTER DATA FOR DDE INJ NO 12: 1 2.00 114388
ENTER DATA FOR DDE INJ NO 13: 1 1.97 112792
```

```
            DDE         DATA TABLE:
RUN DATE: 6 APR 77   CALC DATE: 4 12 77  102  PERSON:RND
DDE         NAMES:DDE-A

NO      INJ VOL      CONC       AREA     RDDE
 1       2.01     3.4700E-07  118836  1.7038E+14
 2       2.11     3.4700E-07  120038  1.6395E+14
 3       2.11     3.4700E-07  125096  1.7086E+14
 4       2.10     3.4700E-07  126598  1.7373E+14
 5       2.02     3.4700E-07  117530  1.6767E+14
 6       1.93     3.4700E-07  111914  1.6711E+14
 7       1.90     3.4700E-07  110694  1.6790E+14
 8       1.99     3.4700E-07  108718  1.5744E+14
 9       2.10     3.4700E-07  114524  1.5716E+14
10       2.00     3.4700E-07  115090  1.6584E+14
11       2.00     3.4700E-07  115150  1.6592E+14
12       2.00     3.4700E-07  114388  1.6482E+14
13       1.97     3.4700E-07  112792  1.6500E+14

RDDE AVG=1.6598E+14       STD DEV=4.7273E+12
RDDE STATS:   SR=2.1578E+15     SRR=3.5842E+29      SPT=13.0

ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO

DO YOU WANT TO OUTPUT DDE         DATA TABLE?
ENTER YES OR NO: NO

DO YOU WANT TO OUTPUT RI          DATA TABLE?
ENTER YES OR NO: YE
```

RI DATA TABLE:

STD AREA NAMES:MIXED-A

RUN DATE: 6 APR 77 CALC DATE: 4 12 77 102 PERSON:RND

CL=CLUSTER NUMBER

CL	RI 1	RI 2	RI 3	RI 4	RI 5	RI 6	RI 7
1	2.681E+13	2.342E+13	2.257E+13				
2	2.759E+13	2.506E+13	2.461E+13				
3	9.177E+13	8.703E+13	8.630E+13				
4	7.332E+13	6.810E+13	6.805E+13				
5	8.058E+13	7.330E+13	7.266E+13				
6	9.832E+13	9.304E+13	9.155E+13				
7	9.719E+13	9.032E+13	9.091E+13				
8	1.059E+14	9.279E+13	8.881E+13				
9	1.272E+14	1.188E+14	1.180E+14				
10	1.252E+14	1.180E+14	1.189E+14				
11	1.290E+14	1.181E+14	1.178E+14				
12	1.525E+14	1.400E+14	1.386E+14				
13	1.599E+14	1.475E+14	1.473E+14				
14	2.259E+14	2.007E+14	1.911E+14				
15	1.698E+14	1.626E+14	1.609E+14				
16	2.223E+14	2.211E+14	2.244E+14				

RI DATA TABLE:

RUN DATE: 6 APR 77 CALC DATE: 4 12 77 102 PERSON:RND

STD AREA NAMES:MIXED-A

CL=CLUSTER NUMBER

CLNO	RAVG	STDDEV	SR	SRR	SPT	SI
1	2.4268E+13	2.2443E+12	7.2803E+13	1.7768E+27	3.0000E+00	1.4620E-01
2	2.5750E+13	1.6067E+12	7.7249E+13	1.9943E+27	3.0000E+00	1.5513E-01
3	8.8368E+13	2.9698E+12	2.6510E+14	2.3444E+28	3.0000E+00	5.3239E-01
4	6.9822E+13	3.0255E+12	2.0947E+14	1.4644E+28	3.0000E+00	4.2066E-01
5	7.5516E+13	4.4011E+12	2.2655E+14	1.7147E+28	3.0000E+00	4.5496E-01
6	9.4304E+13	3.5558E+12	2.8291E+14	2.6705E+28	3.0000E+00	5.6815E-01
7	9.2807E+13	3.8076E+12	2.7842E+14	2.5869E+28	3.0000E+00	5.5914E-01
8	9.5838E+13	8.9533E+12	2.8752E+14	2.7715E+28	3.0000E+00	5.7740E-01
9	1.2131E+14	5.0780E+12	3.6393E+14	4.4199E+28	3.0000E+00	7.3085E-01
10	1.2071E+14	3.9574E+12	3.6213E+14	4.3743E+28	3.0000E+00	7.2724E-01
11	1.2161E+14	6.3897E+12	3.6483E+14	4.4448E+28	3.0000E+00	7.3266E-01
12	1.4371E+14	7.6265E+12	4.3114E+14	6.2076E+28	3.0000E+00	8.6583E-01
13	1.5157E+14	7.1927E+12	4.5470E+14	6.9021E+28	3.0000E+00	9.1315E-01
14	2.0590E+14	1.7952E+13	6.1769E+14	1.2783E+29	3.0000E+00	1.2405E+00
15	1.6444E+14	4.6928E+12	4.9332E+14	8.1166E+28	3.0000E+00	9.9070E-01
16	2.2259E+14	1.6964E+12	6.6777E+14	1.4864E+29	3.0000E+00	1.3410E+00

ENTER 1.0 TO BACK CALC STD CONC,OTHERWISE 0.0: 1.0

ENTER TABLE OUTPUT CODES:-1.0 TABLE NOT LISTED,
1.0 TABLE IS LISTED

ENTER IN ORDER- TBLMI, TBLCI,TBLMN,TBLCN: ‡1.0 -1.0 -1.0 -1.0

VALUES ENTERED= -1.0 -1.0 -1.0 -1.0

ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO

SAM CONC DATA TABLE:

RUN DATE: 6 APR 77 CALC DATE: 4 12 77 102 PERSON:RND

SAMPLE LABEL=MIXED-A

SAMPLE ID=STDMX SAMPLE TYPE=99

NORMALIZING FACTOR:1.0000E+00 WITH UNITS ML

FINAL VOL(ML):1.0000E+00

CONC IS GM NCB PER ML

CL	AVG MI	STDDEV MI	AVG CI	STDDEV CI	FRAC C	FRAC M	CHLORINES
CL=CLUSTER NUMBER							
1	1.075E-07	9.944E-09	1.075E-07	9.944E-09	6.510E-02	6.510E-02	2.000E+00
2	1.734E-07	1.082E-08	1.734E-07	1.082E-08	1.050E-01	1.050E-01	3.000E+00
3	1.752E-07	5.889E-09	1.752E-07	5.889E-09	1.061E-01	1.061E-01	3.000E+00
4	1.401E-07	6.071E-09	1.401E-07	6.071E-09	8.483E-02	8.483E-02	4.000E+00
5	1.070E-07	6.237E-09	1.070E-07	6.237E-09	6.480E-02	6.480E-02	4.000E+00
6	1.631E-07	6.151E-09	1.631E-07	6.151E-09	9.877E-02	9.877E-02	4.000E+00
7	1.396E-07	5.728E-09	1.396E-07	5.728E-09	8.453E-02	8.453E-02	5.000E+00
8	5.342E-08	4.991E-09	5.342E-08	4.991E-09	3.235E-02	3.235E-02	5.000E+00
9	9.811E-08	4.107E-09	9.811E-08	4.107E-09	5.940E-02	5.940E-02	5.000E+00
10	1.092E-07	3.580E-09	1.092E-07	3.580E-09	6.612E-02	6.612E-02	5.000E+00
11	7.308E-08	3.840E-09	7.308E-08	3.840E-09	4.425E-02	4.425E-02	6.000E+00
12	6.334E-08	3.361E-09	6.334E-08	3.361E-09	3.835E-02	3.835E-02	5.000E+00
13	1.210E-07	5.740E-09	1.210E-07	5.740E-09	7.324E-02	7.324E-02	6.000E+00
14	3.914E-08	3.413E-09	3.914E-08	3.413E-09	2.370E-02	2.370E-02	7.000E+00
15	5.410E-08	1.544E-09	5.410E-08	1.544E-09	3.275E-02	3.275E-02	7.000E+00
16	3.427E-08	2.612E-10	3.427E-08	2.612E-10	2.075E-02	2.075E-02	7.000E+00
TT	1.652E-06	2.291E-08	1.652E-06	2.291E-08	1.000E+00	1.000E+00	

MESSAGE...FINAL DATA TABLE IS WRITTEN

TEMPERORY FILE SPAPEA....

```
            GROUP CN    DATA TABLE:
RUN DATE: 6 APR 77    CALC DATE: 4 12 77   102   PERSON:RND
SAMPLE LABEL=MIXED-A
SAMPLE ID=STDMX      SAMPLE TYPE=99
NORMALIZING FACTOR:1.0000E+00        WITH UNITS   ML
FINAL VOL(ML):1.0000E+00
CONC IS GM NCB PER  ML
CL=NUMBER OF CHLORINES
CL AVG MI     STDDEV MI AVG CI     STDDEV CI FRAC C     FRAC M     CHLORINES
 2 1.075E-07 9.944E-09 1.075E-07 9.944E-09 6.510E-02 6.510E-02 2.000E+00
 3 3.486E-07 1.671E-08 3.486E-07 1.671E-08 2.111E-01 2.111E-01 3.000E+00
 4 4.103E-07 1.839E-08 4.103E-07 1.839E-08 2.484E-01 2.484E-01 4.000E+00
 5 4.637E-07 2.159E-08 4.637E-07 2.159E-08 2.807E-01 2.807E-01 5.000E+00
 6 1.940E-07 9.580E-09 1.940E-07 9.580E-09 1.175E-01 1.175E-01 6.000E+00
 7 1.275E-07 4.856E-09 1.275E-07 4.856E-09 7.720E-02 7.720E-02 7.000E+00

TT 1.652E-06 8.092E-08 1.652E-06 8.092E-08 1.000E+00 1.000E+00

AVG GROUP CN WRITTEN ON TEMPORARY FILE SPAREB


DO YOU WANT TO CALC VALUES FOR MORE SAMPLES???
ENTER YES OR NO: YE


ENTER SAMPLE LABEL(50 CHAR MAX):  PCB-342-16-64-1-2
CHARACTERS ACCEPTED= PCB-342-16-64-1-2

ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO
ENTER 5 CHARACTER ID: AS301
CHARACTERS ACCEPTED=AS301

ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO
ENTER NORMALIZING UNITS(10 CHAR MAX): DRY GRAM
CHARACTERS ACCEPTED=DRY GRAM
```

```
ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO

ENTER: TYPE, NO INJ, NORM FAC, FIN VOL(ML):
#2 3 10.38 2.08

DATA ACCEPTED: TYPE NO INJ     NORM FAC     FIN VOL
                2      3      1.0380E+01  2.0800E+00

ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO
ENTER THE CORRESPONDING INJ VOL(UL) FOR EACH INJ:
=2.06 2.2 2.11

DO YOU WANT TO OUTPUT SAM INJ     DATA TABLE?
ENTER YES OR NO: NO
ENTER AREAS FOR EACH CLUSTER:
ENTER ONLY INTEGERS FOR AREAS, MIN=1,MAX=999999 !!!
ENTER INJ NO  1,CLUSTER NO  1: 838 3524
ENTER INJ NO  1,CLUSTER NO  2: 9785
ENTER INJ NO  1,CLUSTER NO  3: 45056
ENTER INJ NO  1,CLUSTER NO  4: 39852
ENTER INJ NO  1,CLUSTER NO  5: 30665
ENTER INJ NO  1,CLUSTER NO  6: 67398
ENTER INJ NO  1,CLUSTER NO  7: 63507
ENTER INJ NO  1,CLUSTER NO  8: 27315
ENTER INJ NO  1,CLUSTER NO  9: 55537
ENTER INJ NO  1,CLUSTER NO 10: 62137
ENTER INJ NO  1,CLUSTER NO 11: 38648
ENTER INJ NO  1,CLUSTER NO 12: 42475
ENTER INJ NO  1,CLUSTER NO 13: 77350
ENTER INJ NO  1,CLUSTER NO 14: 19709 9556
```

```
ENTER INJ NO  1,CLUSTER NO 15: 31528
ENTER INJ NO  1,CLUSTER NO 16: 35314
ENTER INJ NO  2,CLUSTER NO  1: 902 3770
ENTER INJ NO  2,CLUSTER NO  2: 10373
ENTER INJ NO  2,CLUSTER NO  3: 47967
ENTER INJ NO  2,CLUSTER NO  4: 43302
ENTER INJ NO  2,CLUSTER NO  5: 34881
ENTER INJ NO  2,CLUSTER NO  6: 76078
ENTER INJ NO  2,CLUSTER NO  7: 71096
ENTER INJ NO  2,CLUSTER NO  8: 29961
ENTER INJ NO  2,CLUSTER NO  9: 61350
ENTER INJ NO  2,CLUSTER NO 10: 67724
ENTER INJ NO  2,CLUSTER NO 11: 42702
ENTER INJ NO  2,CLUSTER NO 12: 47711
ENTER INJ NO  2,CLUSTER NO 13: 88952
ENTER INJ NO  2,CLUSTER NO 14: 25055 10973
ENTER INJ NO  2,CLUSTER NO 15: 36454
ENTER INJ NO  2,CLUSTER NO 16: 36717
ENTER INJ NO  3,CLUSTER NO  1: 1
ENTER INJ NO  3,CLUSTER NO  2: 10055
ENTER INJ NO  3,CLUSTER NO  3: 46422
ENTER INJ NO  3,CLUSTER NO  4: 41884
ENTER INJ NO  3,CLUSTER NO  5: 33176
ENTER INJ NO  3,CLUSTER NO  6: 72458
ENTER INJ NO  3,CLUSTER NO  7: 69182
ENTER INJ NO  3,CLUSTER NO  8: 31893
ENTER INJ NO  3,CLUSTER NO  9: 63214
ENTER INJ NO  3,CLUSTER NO 10: 70230
ENTER INJ NO  3,CLUSTER NO 11: 46438
ENTER INJ NO  3,CLUSTER NO 12: 51852
ENTER INJ NO  3,CLUSTER NO 13: 92010
ENTER INJ NO  3,CLUSTER NO 14: 23008 11107
ENTER INJ NO  3,CLUSTER NO 15: 35295
ENTER INJ NO  3,CLUSTER NO 16: 33876
```

SAM AREA DATA TABLE:

RUN DATE: 6 APR 77 CALC DATE: 4 12 77 102 PERSON:RND

SAMPLE LABEL= PCB-342-16-64-1-2

SAMPLE ID=AS301 SAMPLE TYPE= 2

NORMALIZING FACTOR:1.0380E+01 WITH UNITS DRY GRAM

FINAL VOL(ML):2.0800E+00

CL=CLUSTER NUMBER

CL	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA
1	4362	4672	1			
2	9785	10373	10055			
3	45056	47967	46422			
4	39852	43302	41884			
5	30665	34881	33176			
6	67398	76078	72458			
7	63507	71096	69172			
8	27315	29961	31893			
9	55537	61350	63214			
10	62137	67724	70230			
11	38648	42702	46438			
12	42475	47711	51852			
13	77350	88952	91010			
14	29265	36028	34115			
15	31528	36454	35294			
16	35314	36717	33876			

ANY (MORE) CORRECTIONS? ENTER YES OR NO: NO

DO YOU WANT TO OUTPUT SAM AREA DATA TABLE?
ENTER YES OR NO: NO

SAM CONC DATA TABLE:

RUN DATE: 6 APR 77 CALC DATE: 4 12 77 102 PERSON:RND

SAMPLE LABEL= PCB-342-16-64-1-2

SAMPLE ID=AS301 SAMPLE TYPE= 2

NORMALIZING FACTOR:1.0380E+01 WITH UNITS DRY GRAM

FINAL VOL(ML):2.0800E+00

CONC IS GM NCB PER DRY GRAM

CL	AVG MI	STDDEV MI	AVG CI	STDDEV CI	FRAC C	FRAC M	CHLORINES
CL=CLUSTER NUMBER							
1	8.739E-08	.0	1.751E-08	.0	2.745E-02	2.745E-02	2.000E+00
2	1.842E-07	1.003E-09	3.691E-08	2.010E-10	5.786E-02	5.786E-02	3.000E+00
3	2.477E-07	1.136E-09	4.964E-08	2.277E-10	7.781E-02	7.781E-02	3.000E+00
4	2.811E-07	3.681E-09	5.633E-08	7.376E-10	8.828E-02	8.828E-02	4.000E+00
5	2.051E-07	6.960E-09	4.110E-08	1.395E-09	6.442E-02	6.442E-02	4.000E+00
6	3.593E-07	1.075E-08	7.199E-08	2.154E-09	1.128E-01	1.128E-01	4.000E+00
7	3.445E-07	1.100E-08	6.904E-08	2.204E-09	1.082E-01	1.082E-01	5.000E+00
8	1.461E-07	1.027E-08	2.927E-08	2.058E-09	4.587E-02	4.587E-02	5.000E+00
9	2.330E-07	1.266E-08	4.670E-08	2.537E-09	7.319E-02	7.319E-02	5.000E+00
10	2.602E-07	1.369E-08	5.214E-08	2.743E-09	8.173E-02	8.173E-02	5.000E+00
11	1.650E-07	1.413E-08	3.305E-08	2.832E-09	5.181E-02	5.181E-02	6.000E+00
12	1.551E-07	1.424E-08	3.108E-08	2.853E-09	4.872E-02	4.872E-02	5.000E+00
13	2.664E-07	1.842E-08	5.337E-08	3.692E-09	8.366E-02	8.366E-02	6.000E+00
14	7.569E-08	5.815E-09	1.517E-08	1.165E-09	2.377E-02	2.377E-02	7.000E+00
15	9.852E-08	4.742E-09	1.974E-08	9.502E-10	3.094E-02	3.094E-02	7.000E+00
16	7.471E-08	2.455E-09	1.497E-08	4.919E-10	2.346E-02	2.346E-02	7.000E+00
TT	3.184E-06	3.947E-08	6.380E-07	7.910E-09	1.000E+00	1.000E+00	

MESSAGE...FINAL DATA TABLE IS WRITTEN

TEMPERORY FILE SPAREA....

GROUP CN DATA TABLE:

RUN DATE: 6 APR 77 CALC DATE: 4 12 77 102 PERSON:RND
SAMPLE LABEL= PCB-342-16-64-1-2
SAMPLE ID=AS301 SAMPLE TYPE= 2
NORMALIZING FACTOR:1.0380E+01 WITH UNITS DRY GRAM
FINAL VOL(ML):2.0800E+00
CONC IS GM NCB PER DRY GRAM
CL=NUMBER OF CHLORINES

CL	AVG MI	STDDEV MI	AVG CI	STDDEV CI	FRAC C	FRAC M	CHLORINES
2	8.739E-08	1.271E-10	1.751E-08	2.546E-11	2.745E-02	2.745E-02	2.000E+00
3	4.320E-07	2.098E-09	8.656E-08	4.204E-10	1.357E-01	1.357E-01	3.000E+00
4	8.454E-07	2.108E-08	1.694E-07	4.224E-09	2.655E-01	2.655E-01	4.000E+00
5	1.139E-06	6.030E-08	2.282E-07	1.208E-08	3.577E-01	3.577E-01	5.000E+00
6	4.313E-07	3.206E-08	8.643E-08	6.424E-09	1.355E-01	1.355E-01	6.000E+00
7	2.489E-07	8.636E-09	4.988E-08	1.730E-09	7.818E-02	7.818E-02	7.000E+00
TT	3.184E-06	1.165E-07	6.380E-07	2.335E-08	1.000E+00	1.000E+00	

AVG GROUP CN WRITTEN ON TEMPORARY FILE SPAREB

APPENDIX E': HYDROGRAPHY DATA LIST AND DEPTH PROFILES

Explanation of Abbreviation in Data Tables

Sigma-t	:	An expression for the density of seawater at atmospheric pressure.
AOU	:	Apparent oxygen utilization; the difference between the surface equilibrium solubility of a water sample and observed oxygen concentration.
Oxygen % Saturation	:	Observed oxygen concentration divided by the surface equilibrium solubility value.

HYDRO REPORT FOR CR 76 3-16-76 TIME-15.1 HR MT
STATION NO 19 CAST LAT-47 35.9 LONG- 21.6 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY 0/00	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN 0/0 SATD	AOU
0	7.54	21.888	17.10	6.28	.561	86	.088
5	7.44	28.446	22.24	5.97	.533	86	.090
10	7.43	28.604	22.36	5.96	.533	85	.090
50	7.41	28.847	22.56	5.74	.513	82	.110
59	7.46	28.981	22.65	5.44	.486	78	.135

HYDRO REPORT FOR CR 76   3-16-76   TIME-16.4 HR GMT
STATION NO 44   CAST   LAT-47 35.4   LONG-122 21.6   MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	7.51	22.314	17.43	6.10	.545	84	.103
5	7.43	28.522	22.30	5.95	.531	85	.092
10	7.44	28.605	22.36	5.91	.528	85	.095
24	7.41	28.707	22.45	5.86	.524	84	.099
33	7.43	28.839	22.55	5.76	.515	83	.107

HYDRO REPORT FOR CR 76 3-16-76 TIME-17.6 HR GMT
STATION NO 17 CAST LAT-47 35.5 LONG-122 22.6 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY 0/00	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	7.57	28.155	21.99	6.07	.542	87	.081
5	7.49	28.484	22.26	6.05	.541	87	.082
10	7.46	28.593	22.35	6.01	.537	86	.086
50	7.41	28.707	22.45	5.90	.527	85	.096
59	7.43	28.715	22.45	5.89	.526	84	.097

HYDRO REPORT FOR CR 76 3-16-76 TIME-19.3 HR GMT
STATION NO 6 CAST LAT-47 35.7 LONG-122 22.7 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	7.89	28.283	22.05	6.02	.538	87	.080
5	7.47	28.499	22.28	6.03	.538	86	.084
10	7.44	28.575	22.34	5.99	.535	86	.088
50	7.42	28.741	22.47	5.89	.526	84	.097
59	7.42	28.759	22.49	5.84	.521	84	.101

HYDRO REPORT FOR CR 76 3-16-76 TIME-20.8 HR GMT
STATION NO 10 CAST LAT-47 35.7 LONG-122 21.7 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	7.97	25.504	19.87	6.15	.549	87	.079
5	7.49	28.401	22.20	6.05	.540	87	.083
10	7.44	28.575	22.34	6.01	.537	86	.086
50	7.41	28.745	22.48	5.86	.524	84	.099
59	7.42	28.747	22.48	5.85	.522	84	.100

HYDRO REPORT FOR CR 99 4- 8-76 TIME-16.7 HR GMT
STATION NO 19 CAST LAT-47 35.9 LONG-122 21.6 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	8.17	18.911	14.70	6.63	.592	91	.060
5	7.81	28.019	21.86	6.31	.564	91	.056
10	7.61	28.664	22.39	6.23	.557	90	.064
50	7.36	28.886	22.59	5.97	.533	86	.090
59	7.54	28.984	22.65	5.77	.515	83	.105

HYDRO REPORT FOR CR 99 4- 8-76 TIME-18.2 HR GMT
STATION NO 44 CAST LAT-47 35.4 LONG-122 21.6 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY 0/00	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	8.07	17.379	13.52	6.63	.592	90	.068
5	7.76	28.507	22.24	6.27	.560	91	.058
10	7.64	28.686	22.40	6.27	.560	90	.059
20	7.82	28.303	22.08	6.27	.560	91	.058
30	7.52	28.793	22.50	6.06	.541	87	.080

HYDRO REPORT FOR CR 99 4- 8-76 TIME-19.7 HR GMT
STATION NO 17 CAST LAT-47 35.5 LONG-122 22.6 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	8.06	27.618	21.51	6.49	.579	94	.038
5	7.88	28.419	22.16	6.41	.573	93	.044
10	7.66	28.664	22.38	6.22	.556	90	.064
53	7.39	29.011	22.69	5.85	.523	84	.099
63	7.37	29.037	22.71	5.82	.520	84	.102

HYDRO REPORT FOR CR 99 4- 8-76 TIME-21.7 HR GMT
STATION NO 6 CAST LAT-47 35.7 LONG-122 22.7 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY 0/00	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN 0/0 SATD	AOU
0	8.07	25.827	20.11	6.41	.573	92	.052
5	7.69	28.568	22.30	6.31	.564	91	.055
10	7.61	28.729	22.44	6.17	.551	89	.068
50	7.35	29.015	22.70	5.78	.516	83	.106
60	7.35	29.085	22.75	5.70	.509	82	.113

HYDRO REPORT FOR CR 99 4- 8-76 TIME-22.9 HR GMT
STATION NO 10 CAST LAT-47 35.7 LONG-122 21.7 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	8.08	26.877	20.93	6.33	.565	91	.055
5	7.81	28.493	22.23	6.39	.571	92	.047
10	7.61	28.699	22.41	6.17	.551	89	.069
50	7.33	28.996	22.68	5.75	.513	82	.110
60	7.35	29.074	22.74	5.70	.509	82	.114

HYDRO REPORT FOR CR170 6-18-76 TIME-16.8 HR GMT
STATION NO 19 CAST LAT-47 35.9 LONG-122 21.6 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATO	AOU
0	10.63	26.000	19.88	5.97	.533	91	.056
5	10.17	28.567	21.94	5.98	.534	91	.051
10	9.85	29.072	22.38	5.92	.529	90	.059
50	9.63	29.276	22.57	5.60	.500	85	.090
59	9.59	29.293	22.59	5.57	.497	84	.093

HYDRO REPORT FOR CR170 6-18-76 TIME-18.6 HR GMT
STATION NO 44 CAST LAT-47 35.4 LONG-122 21.6 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	11.03	25.844	19.69	6.10	.544	93	.040
3	10.02	28.877	22.20	6.07	.542	92	.044
7	9.82	29.146	22.44	5.93	.530	90	.058
10	9.81	29.151	22.45	5.91	.528	90	.060
20	9.79	29.171	22.47	5.89	.526	89	.062

HYDRO REPORT FOR CR170 6-18-76 TIME-19.9 HR GMT
STATION NO 17 CAST LAT-47 35.5 LONG-122 21.6 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	11.41	27.731	21.09	6.13	.547	96	.025
5	10.13	29.065	22.33	6.10	.544	93	.040
10	9.84	29.160	22.45	5.88	.525	89	.062
50	9.52	29.293	22.60	5.50	.491	83	.100
60	9.39	29.363	22.68	5.49	.490	83	.103

HYDRO REPORT FOR CR170 6-18-76 TIME-22.0 HR GMT
STATION NO 6 CAST LAT-47 35.7 LONG-122 21.6 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	OXYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	13.27	14.667	10.72	6.30	.563	94	.034
5	9.76	29.054	22.38	5.97	.533	91	.056
8	9.24	29.136	22.53	5.85	.522	88	.073
10	9.66	29.329	22.61	5.43	.485	82	.104
50	9.34	29.380	22.70	5.32	.475	80	.118

HYDRO REPORT FOR CR170 6-18-76 TIME-22.5 HR GMT
STATION NO 10 CAST LAT-47 35.7 LONG-122 21.7 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	13.56	18.812	13.85	6.26	.559	97	.019
5	9.86	29.045	22.36	5.98	.534	91	.054
10	9.70	29.160	22.47	5.86	.523	89	.066
50	9.36	29.329	22.66	5.48	.489	82	.104
58	9.19	29.422	22.76	5.20	.464	78	.131

HYDRO REPORT FOR CP266 9-22-76 TIME-16.6 HR GMT
STATION NO 19 CAST LAT-47 35.5 LONG-122 21.6 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	12.49	29.162	22.00	5.16	.461	83	.094
0	12.49	29.165	22.00	5.12	.458	83	.097
5	12.45	29.512	22.28	5.35	.478	86	.076
5	12.45	29.511	22.28	5.36	.479	86	.075
10	12.24	29.580	22.37	5.08	.453	82	.103
10	12.24	29.582	22.37	5.07	.453	81	.104
38	11.63	29.744	22.61	4.22	.377	67	.186
38	11.63	29.749	22.61	4.21	.376	67	.187
47	11.45	29.810	22.69	4.13	.369	65	.195
47	11.45	29.810	22.69	4.05	.361	64	.203

HYDRO REPORT FOR CR266 9-22-76 TIME-18.4 HR GMT
STATION NO 44 CAST LAT-47 35.7 LONG-122 21.6 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	12.74	25.329	19.00	4.67	.417	74	.148
0	12.74	26.120	19.61	4.68	.418	74	.144
5	12.32	29.500	22.29	5.10	.455	82	.100
5	12.32	29.502	22.29	5.10	.455	82	.100
10	12.20	29.613	22.40	4.96	.443	80	.113
10	12.20	29.615	22.40	4.99	.445	80	.111
46	11.40	29.831	22.71	4.03	.360	64	.205
46	11.40	29.836	22.72	4.01	.358	63	.208
55	11.09	29.950	22.86	3.61	.322	57	.247
55	11.09	29.947	22.86	3.61	.322	57	.247

HYDRO REPORT FOR CR266 9-22-76 TIME-19.6 HR GMT
STATION NO 17 CAST LAT-47 35.7 LONG-122 21.7 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	12.43	28.588	21.57	4.86	.434	78	.124
0	12.43	28.592	21.57	4.78	.427	77	.131
5	12.32	29.302	22.14	5.02	.448	81	.108
5	12.32	29.317	22.15	5.00	.447	80	.109
10	12.33	29.538	22.32	5.23	.467	84	.088
10	12.33	29.541	22.32	5.19	.463	83	.092
48	11.43	29.833	22.71	4.06	.363	64	.202
48	11.43	29.828	22.71	4.03	.360	64	.205
57	11.27	29.883	22.78	3.85	.344	61	.223
57	11.27	29.883	22.78	3.88	.347	61	.220

HYDRO REPORT FOR CR266 9-22-76 TIME-21.5 HR GMT
STATION NO 6 CAST LAT-47 35.9 LONG-122 21.6 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	12.63	27.799	20.92	4.78	.427	77	.130
0	12.63	27.755	20.89	4.83	.432	77	.126
5	12.20	29.427	22.26	4.88	.436	78	.121
5	12.20	29.429	22.26	4.91	.439	79	.118
10	12.09	29.636	22.44	4.91	.438	79	.120
10	12.09	29.636	22.44	4.91	.438	79	.120
44	11.46	29.801	22.68	4.06	.363	64	.202
44	11.46	29.801	22.68	4.03	.360	64	.205
53	11.29	29.869	22.76	3.86	.345	61	.222
53	11.29	29.869	22.76	3.89	.348	61	.219

HYDRO REPORT FOR CR266 9-22-76 TIME-22.5 HR GMT
STATION NO 10 CAST LAT-47 35.4 LONG-122 21.6 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	12.86	27.254	20.46	4.93	.440	79	.117
0	12.86	27.262	20.47	4.99	.446	80	.111
5	12.32	29.562	22.34	5.14	.459	83	.096
5	12.32	29.558	22.34	5.16	.461	83	.094
10	12.18	29.643	22.43	5.07	.453	81	.104
10	12.18	29.648	22.43	5.08	.454	82	.103
34	11.79	29.722	22.56	4.39	.392	70	.169
34	11.79	29.719	22.56	4.35	.388	69	.173
43	11.74	29.723	22.57	4.29	.383	68	.179
43	11.74	29.724	22.57	4.30	.384	68	.178

HYDRO REPORT FOR CR343 12- 8-76   TIME-16.7 HR GMT
STATION NO 6   CAST   LAT-47 35.7   LONG-122 21.6   MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	9.93	29.768	22.91	4.52	.404	69	.181
0	9.93	29.776	22.92	4.70	.419	72	.165
5	9.99	30.103	23.16	4.74	.423	73	.159
5	9.99	30.118	23.17	.00	.000	0	.000
10	9.97	30.138	23.19	4.35	.388	67	.194
10	9.97	30.144	23.20	4.54	.406	70	.177
52	9.95	30.191	23.24	4.41	.394	68	.188
52	9.95	30.180	23.23	4.42	.395	68	.188
61	9.90	30.206	23.26	4.42	.395	68	.188
61	9.90	30.215	23.26	4.42	.395	68	.188

HYDRO REPORT FOR CR343 12- 8-76 TIME-18.6 HR GMT
STATION NO 10 CAST LAT-47 35.7 LONG-122 21.7 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	9.88	29.494	22.70	4.75	.424	72	.162
0	9.88	29.478	22.69	4.72	.422	72	.164
5	9.94	29.835	22.96	4.65	.415	71	.168
5	9.94	29.804	22.94	4.66	.416	71	.168
10	9.98	30.134	23.19	4.61	.412	71	.171
10	9.98	30.138	23.19	4.66	.416	71	.166
54	9.90	30.196	23.25	4.42	.395	68	.188
54	9.90	30.192	23.24	4.38	.391	67	.192
63	9.60	30.339	23.41	4.29	.383	65	.203
63	9.60	30.342	23.41	4.38	.391	67	.195

HYDRO REPORT FOR CR343 12- 8-76 TIME-20.2 HR GMT
STATION NO 17 CAST LAT-47 35.5 LONG-122 21.6 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	9.93	30.168	23.22	4.67	.417	72	.165
0	9.93	30.150	23.21	4.70	.419	72	.163
5	9.93	30.151	23.21	4.60	.411	71	.172
5	9.93	30.146	23.20	4.65	.415	71	.168
10	9.93	30.139	23.20	4.65	.415	71	.167
10	9.93	30.141	23.20	4.65	.415	71	.168
71	9.69	30.289	23.35	4.33	.386	66	.199
71	9.69	30.286	23.35	4.35	.389	66	.197
80	9.66	30.313	23.38	4.32	.386	66	.200
80	9.66	30.319	23.38	4.29	.383	65	.202

HYDRO REPORT FOR CR343 12- 8-76 TIME-22.1 HR GMT
STATION NO 44 CAST LAT-47 35.4 LONG-122 21.6 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	9.86	29.208	22.49	4.73	.423	72	.165
0	9.86	29.216	22.49	4.70	.420	71	.167
5	9.95	30.182	23.23	4.57	.408	70	.174
5	9.95	30.168	23.22	4.61	.412	71	.171
10	9.94	30.162	23.21	4.54	.405	70	.178
10	9.94	30.146	23.20	4.56	.408	70	.175
20	9.98	30.169	23.21	4.38	.391	67	.191
20	9.98	30.169	23.21	4.41	.394	68	.188
25	9.95	30.164	23.22	4.43	.396	68	.187
25	9.95	30.170	23.22	4.41	.394	68	.188

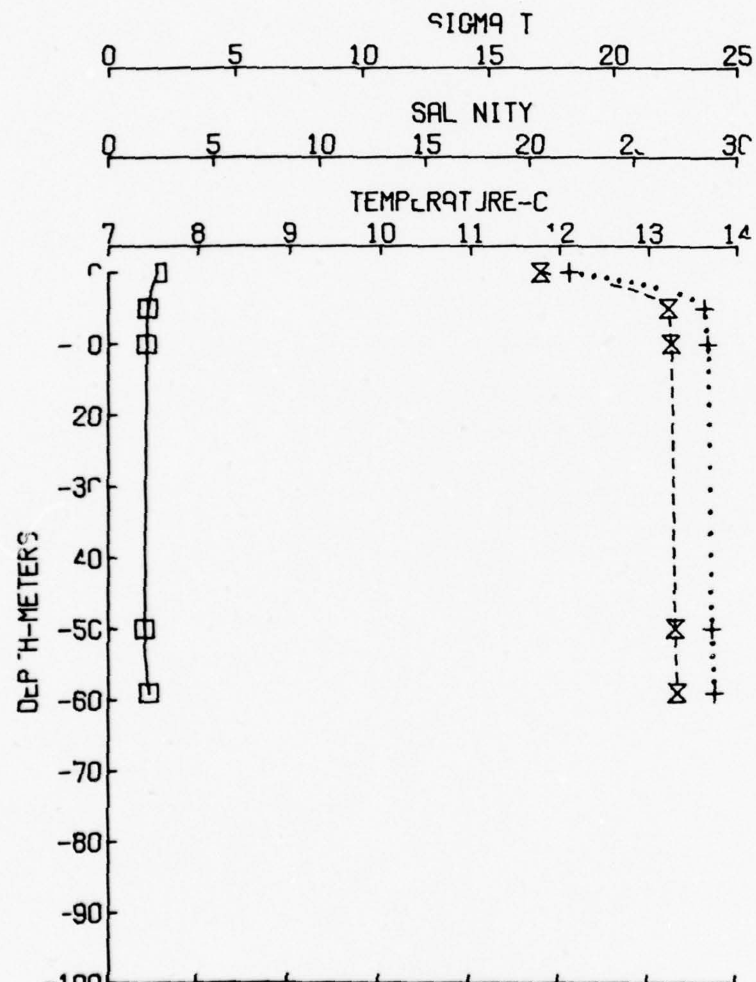
HYDRO REPORT FOR CR343 12- 8-76 TIME-23.2 HR GMT
STATION NO 19 CAST 1 LAT-47 35.9 LONG-122 21.6 MARSDEN SQUARE-157

DEPTH M	TEMP C	SALINITY O/OO	SIGMA-T	O XYGEN ML/L	OXYGEN MG-AT/L	OXYGEN O/O SATD	AOU
0	9.88	30.174	23.23	4.84	.432	74	.151
0	9.88	30.181	23.24	4.82	.431	74	.153
5	9.94	29.783	22.92	4.86	.434	74	.150
5	9.94	29.781	22.92	4.87	.435	74	.149
10	9.99	30.037	23.11	.00	.000	0	.000
10	9.99	30.029	23.10	4.58	.409	70	.174
41	9.96	30.151	23.20	4.56	.407	70	.175
41	9.96	30.150	23.20	4.54	.406	70	.177
50	9.98	30.178	23.22	4.43	.396	68	.186
50	9.98	30.180	23.22	4.33	.387	66	.195

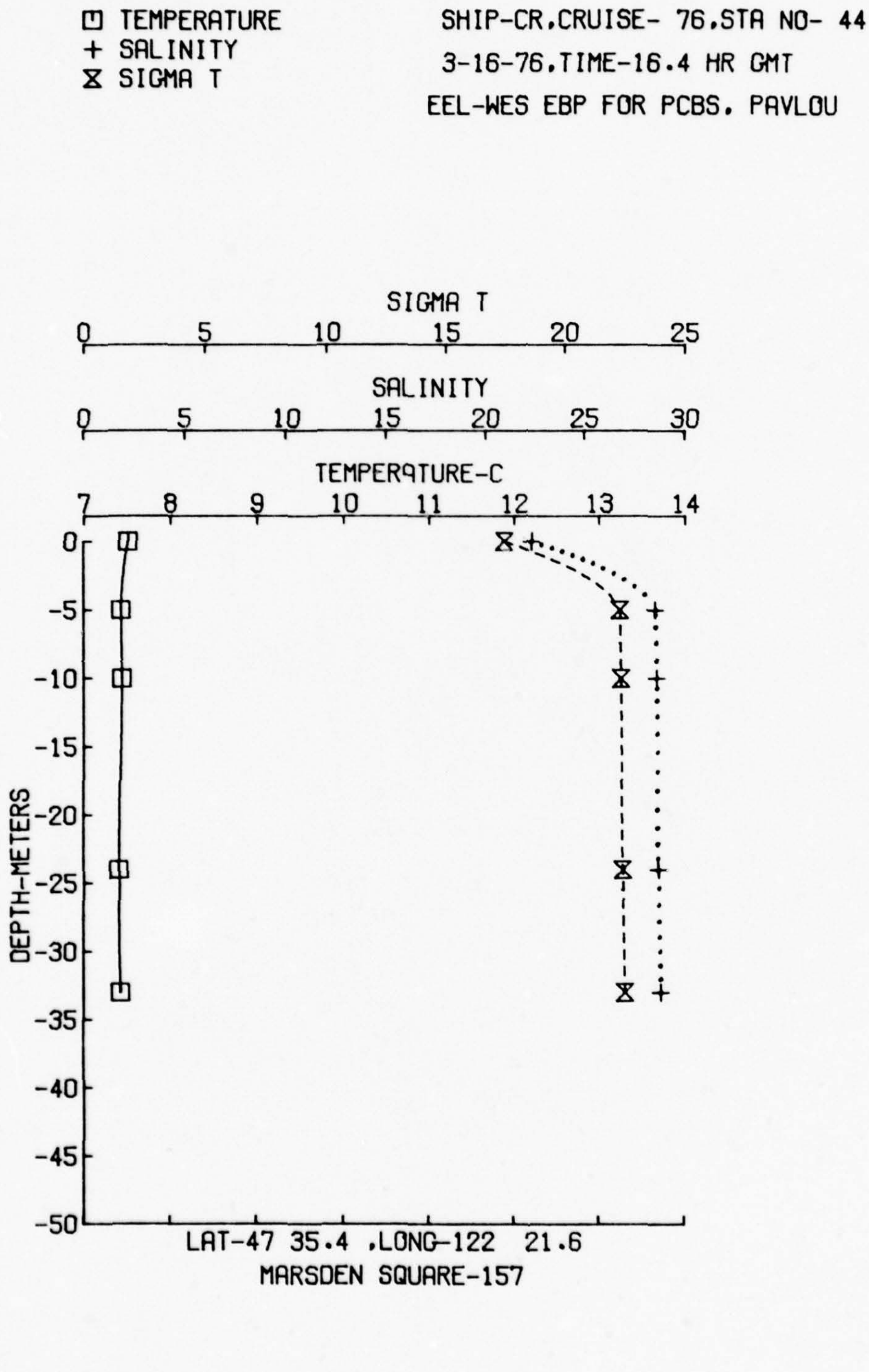
THIS PROGRAM HAS JUST LISTED HYDRO DATA ON THESIS FORMAT

□ TEMPERATURE
+ SALINITY
⧖ SIGMA T

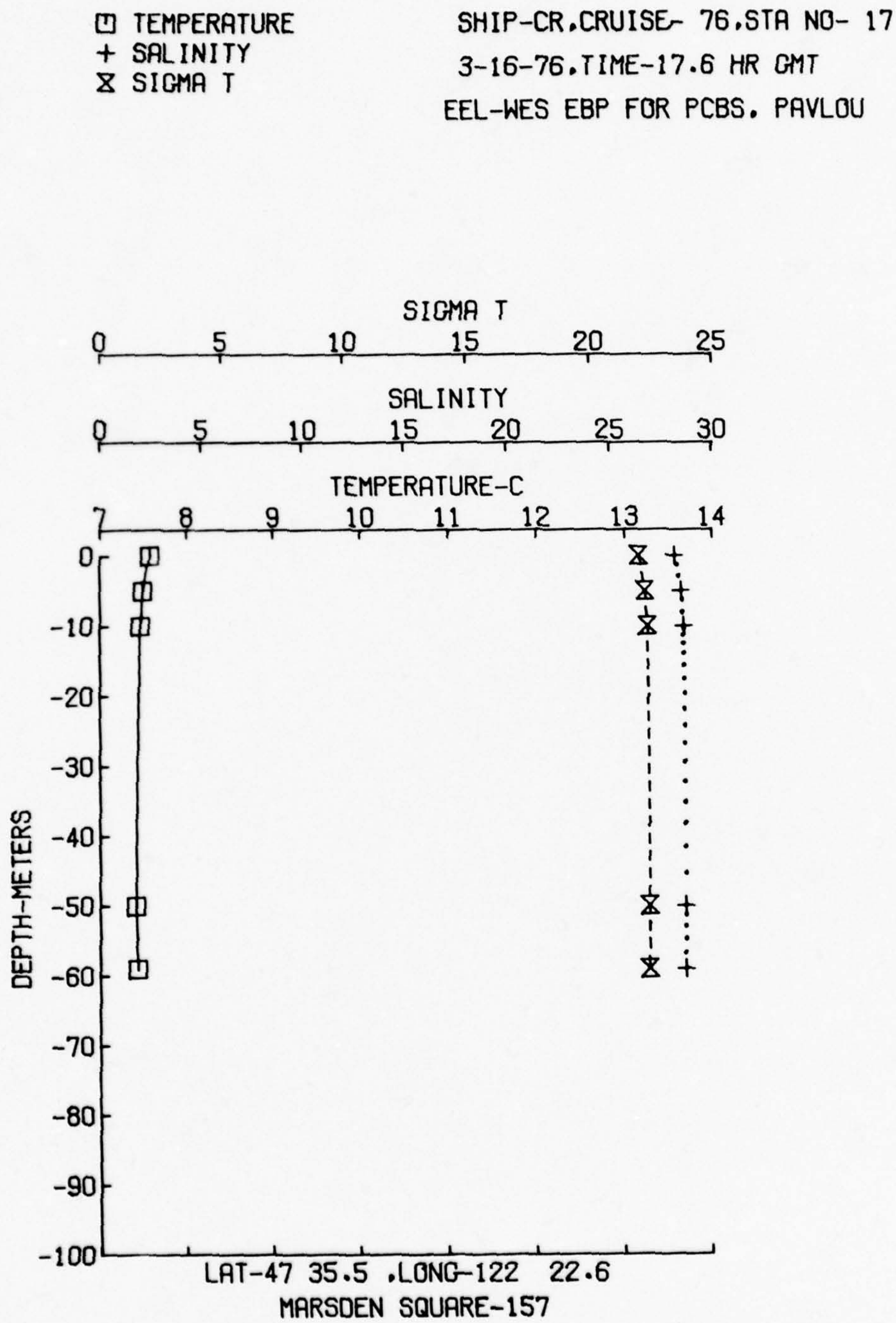
SHIP-CR,CRUISE- 76,STA NO- 19
3-16-76,TIME-15.1 HR GMT
EEL-WES EBP FOR PCBS. PAVLOU



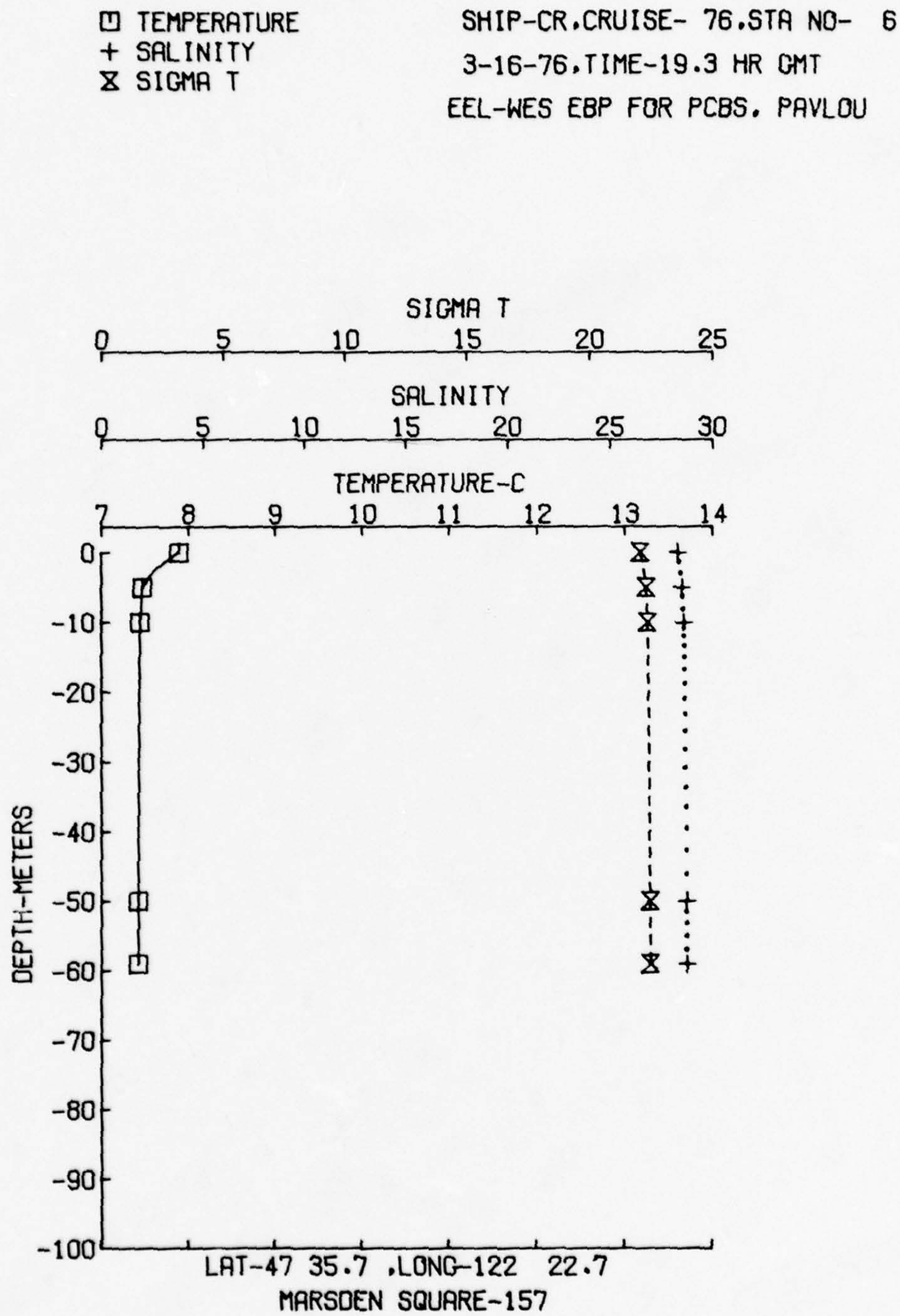
LAT-47 35.9 ,LONG-122 21.6
MARSDEN SQUARE-157



TEMPERATURE
SALINITY
SIGMA T
SHIP-CR,CRUISE- 76,STA NO- 44
3-16-76,TIME-16.4 HR GMT
EEL-WES EBP FOR PCBS, PAVLOU
SIGMA T
0 5 10 15 20 25
SALINITY
0 5 10 15 20 25 30
TEMPERATURE-C
7 8 9 10 11 12 13 14
DEPTH-METERS
0 -5 -10 -15 -20 -25 -30 -35 -40 -45 -50
LAT-47 35.4 ,LONG-122 21.6
MARSDEN SQUARE-157



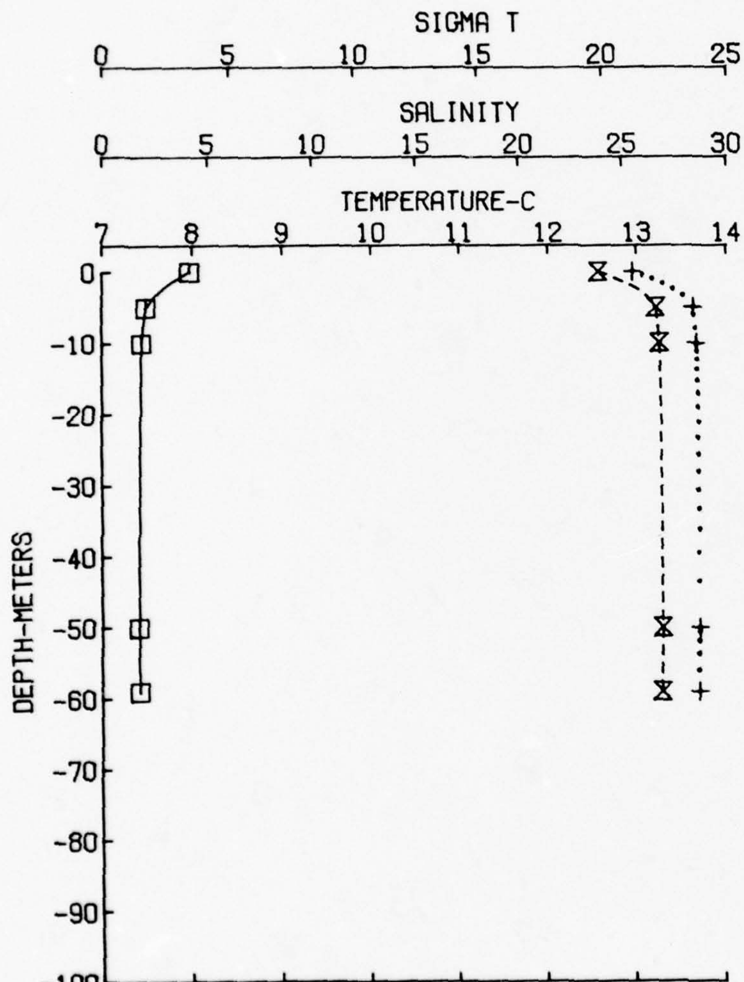
TEMPERATURE
SALINITY
SIGMA T
SHIP-CR.CRUISE- 76.STA NO- 17
3-16-76.TIME-17.6 HR GMT
EEL-WES EBP FOR PCBS. PAVLOU
SIGMA T
0 5 10 15 20 25
SALINITY
0 5 10 15 20 25 30
TEMPERATURE-C
7 8 9 10 11 12 13 14
DEPTH-METERS
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
LAT-47 35.5 .LONG-122 22.6
MARSDEN SQUARE-157



TEMPERATURE
SALINITY
SIGMA T
SHIP-CR.CRUISE- 76.STA NO- 6
3-16-76.TIME-19.3 HR GMT
EEL-WES EBP FOR PCBS. PAVLOU
SIGMA T
0 5 10 15 20 25
SALINITY
0 5 10 15 20 25 30
TEMPERATURE-C
7 8 9 10 11 12 13 14
DEPTH-METERS
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
LAT-47 35.7 ,LONG-122 22.7
MARSDEN SQUARE-157

□ TEMPERATURE
+ SALINITY
⧖ SIGMA T

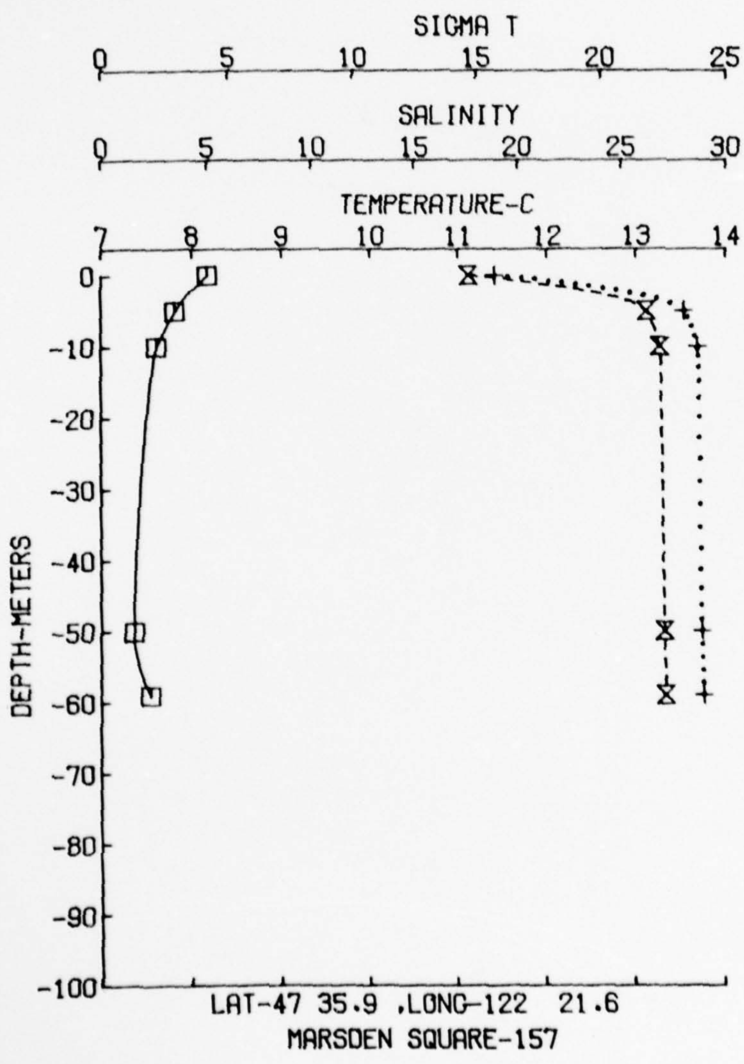
SHIP-CR,CRUISE- 76,STA NO- 10
3-16-76,TIME-20.8 HR GMT
EEL-WES EBP FOR PCBS, PAVLOU



LAT-47 35.7 ,LONG-122 21.7
MARSDEN SQUARE-157

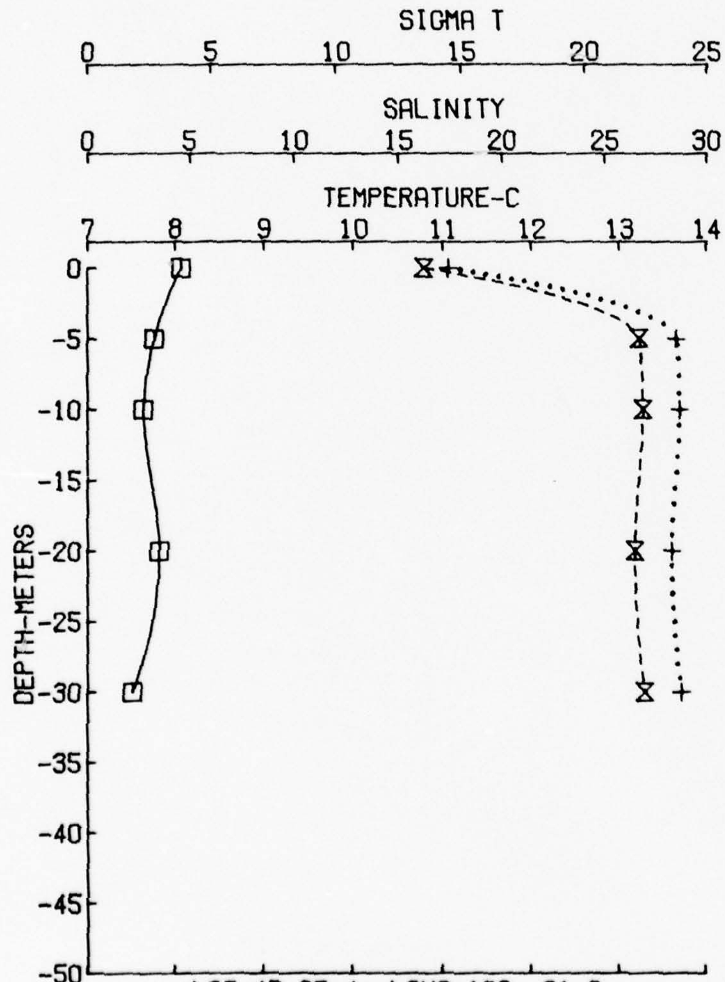
□ TEMPERATURE
+ SALINITY
⧖ SIGMA T

SHIP-CR.CRUISE- 99,STA NO- 19
4- 8-76,TIME-16.7 HR GMT
EEL-WES EBP FOR PCBS. PAVLOU

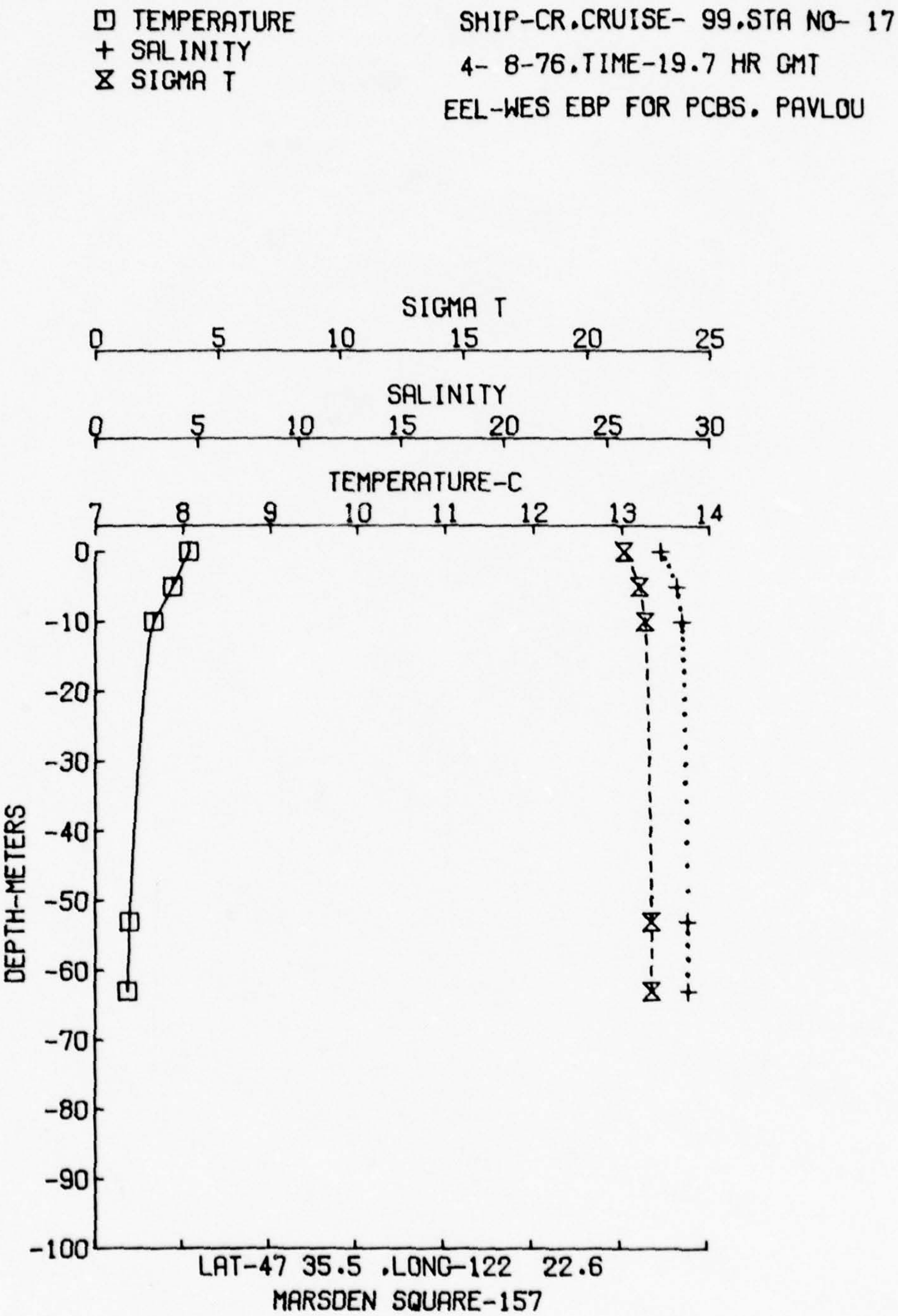


□ TEMPERATURE
+ SALINITY
⧖ SIGMA T

SHIP-CR.CRUISE- 99.STA NO- 44
4- 8-76.TIME-18.2 HR GMT
EEL-WES EBP FOR PCBS. PAVLOU



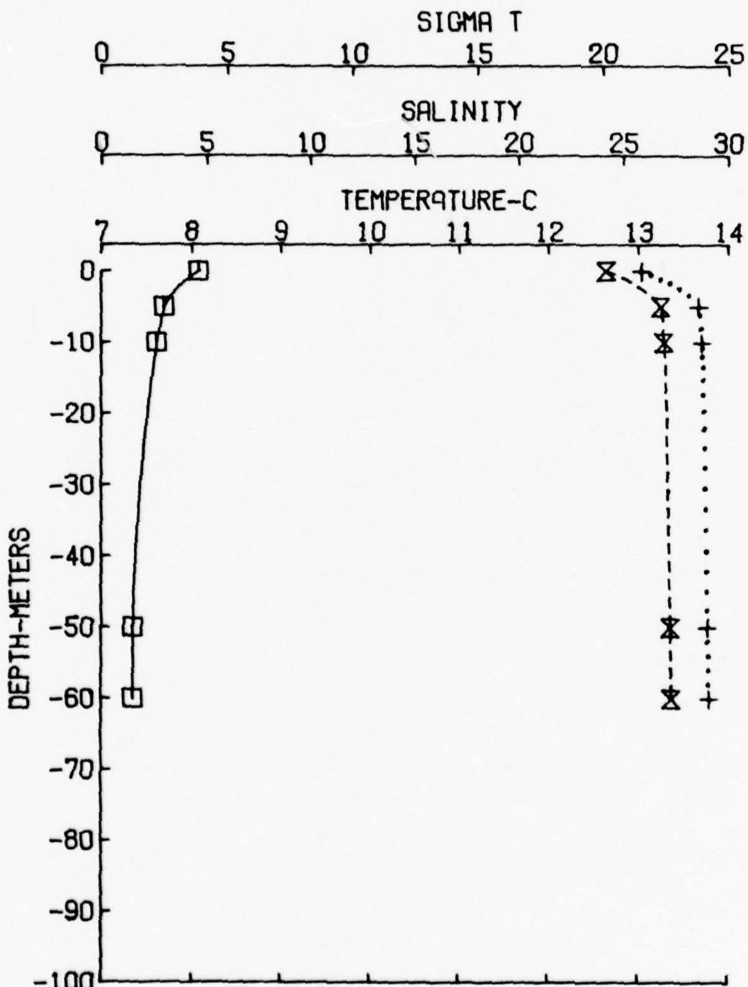
LAT-47 35.4 .LONG-122 21.6
MARSDEN SQUARE-157



□ TEMPERATURE
+ SALINITY
⧖ SIGMA T
SHIP-CR.CRUISE- 99.STA NO- 17
4- 8-76.TIME-19.7 HR GMT
EEL-WES EBP FOR PCBS. PAVLOU
SIGMA T
0 5 10 15 20 25
SALINITY
0 5 10 15 20 25 30
TEMPERATURE-C
7 8 9 10 11 12 13 14
DEPTH-METERS
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
LAT-47 35.5 .LONG-122 22.6
MARSDEN SQUARE-157

◻ TEMPERATURE
+ SALINITY
⧗ SIGMA T

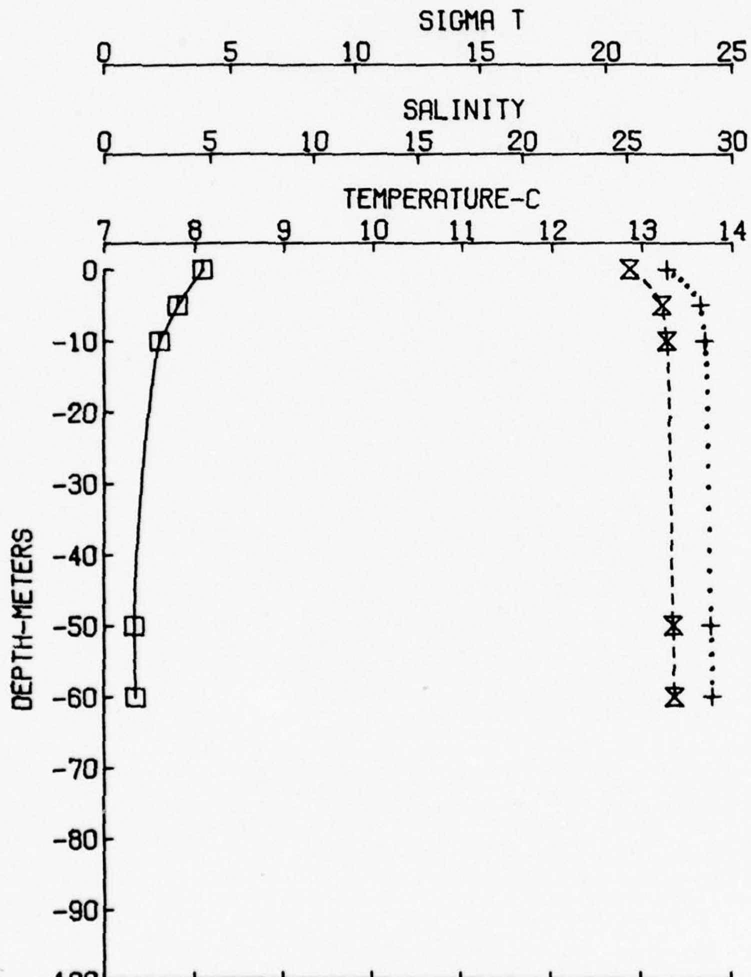
SHIP-CR.CRUISE- 99.STA NO- 6
4- 8-76.TIME-21.7 HR GMT
EEL-WES EBP FOR PCBS. PAVLOU



LAT-47 35.7 ,LONG-122 22.7
MARSDEN SQUARE-157

☐ TEMPERATURE
+ SALINITY
⧗ SIGMA T

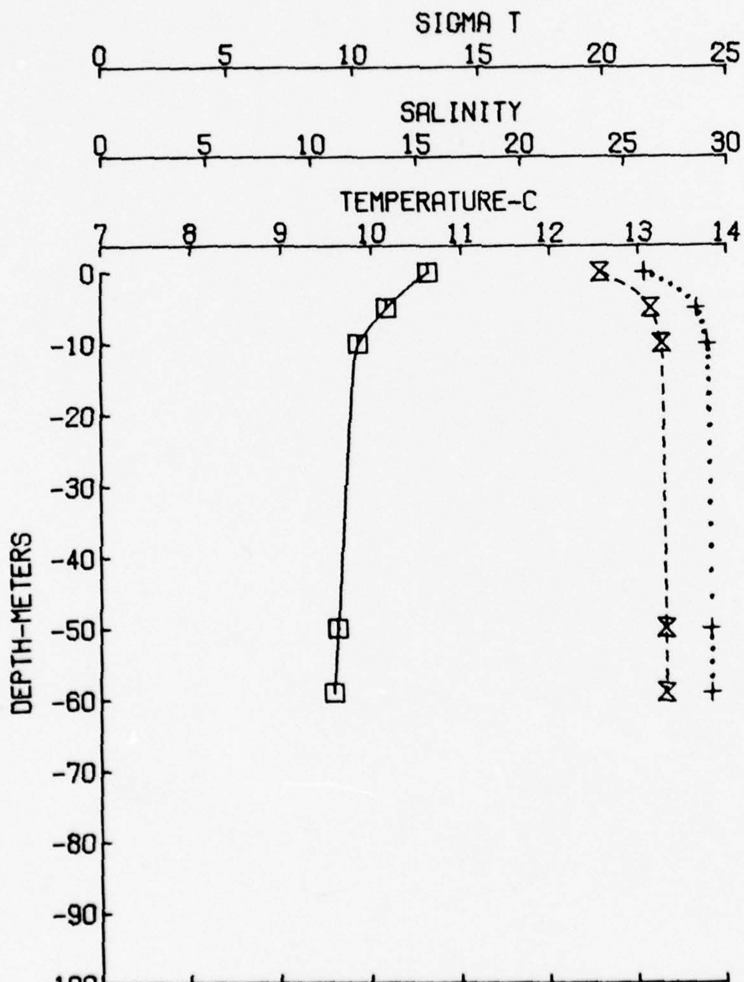
SHIP-CR,CRUISE- 99,STA NO- 10
4- 8-76,TIME-22.9 HR GMT
EEL-WES EBP FOR PCBS, PAVLOU



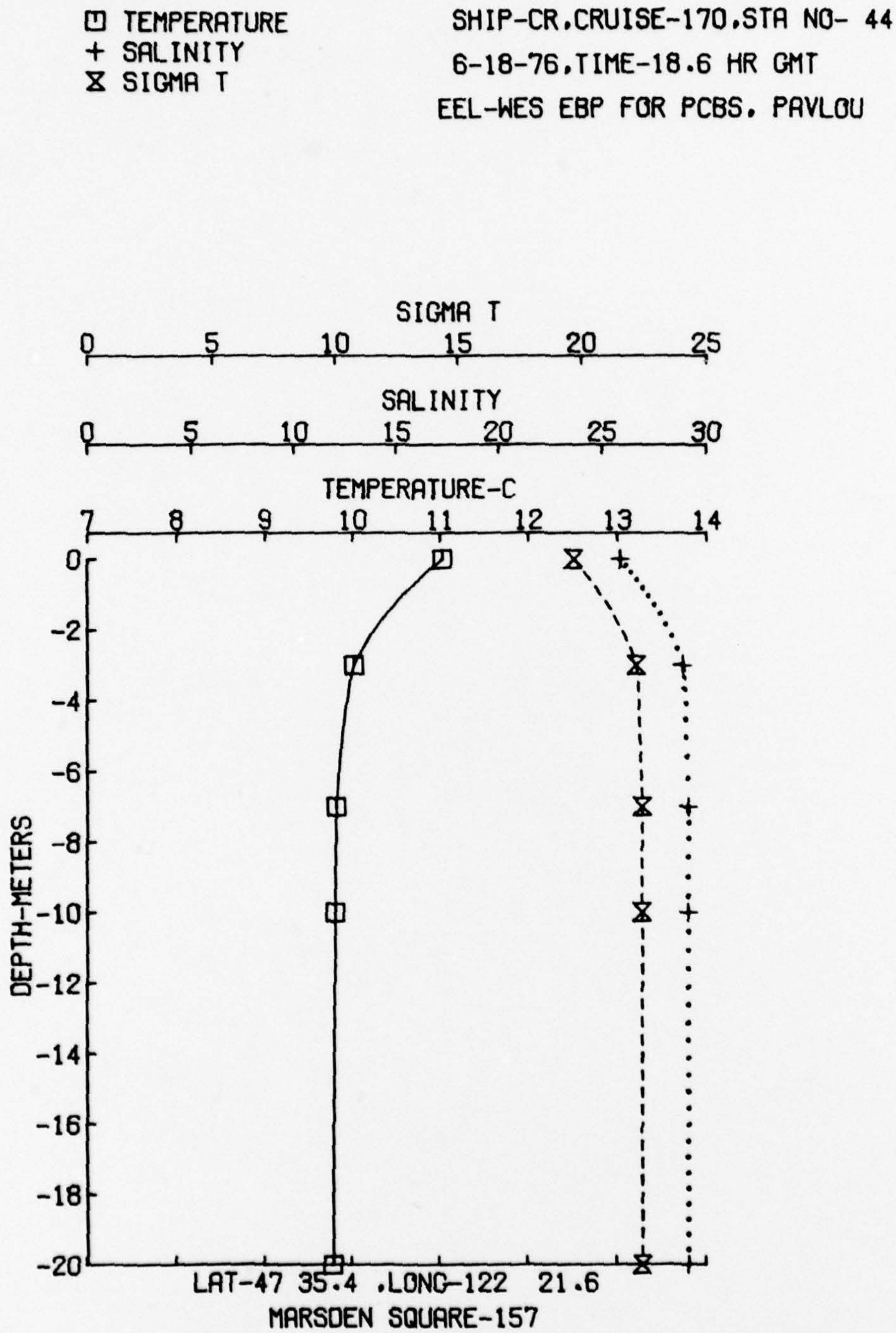
LAT-47 35.7 ,LONG-122 21.7
MARSDEN SQUARE-157

□ TEMPERATURE
+ SALINITY
⧖ SIGMA T

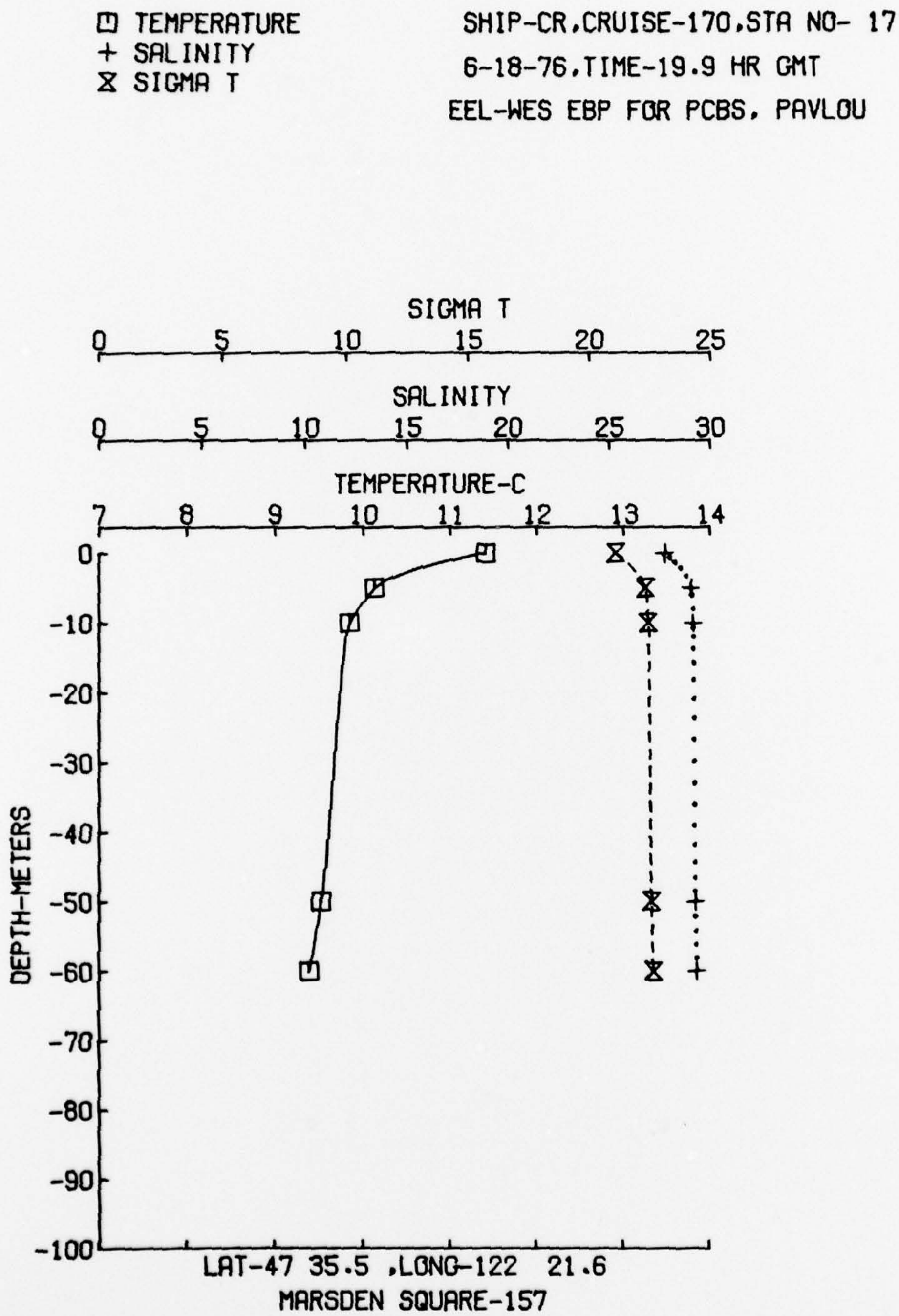
SHIP-CR,CRUISE-170,STA NO- 19
6-18-76,TIME-16.8 HR GMT
EEL-WES EBP FOR PCBS. PAVLOU



LAT-47 35.9 ,LONG-122 21.6
MARSDEN SQUARE-157



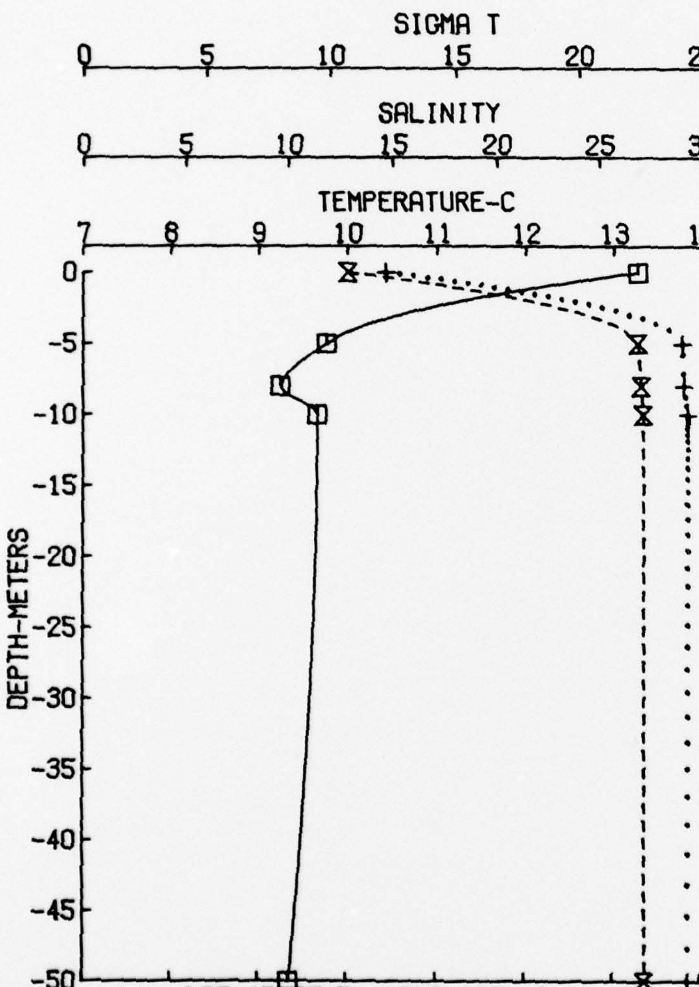
☐ TEMPERATURE
+ SALINITY
⧖ SIGMA T
SHIP-CR,CRUISE-170,STA NO- 44
6-18-76,TIME-18.6 HR GMT
EEL-WES EBP FOR PCBS, PAVLOU
SIGMA T
0 5 10 15 20 25
SALINITY
0 5 10 15 20 25 30
TEMPERATURE-C
7 8 9 10 11 12 13 14
0 -2 -4 -6 -8 -10 -12 -14 -16 -18 -20
DEPTH-METERS
LAT-47 35.4 ,LONG-122 21.6
MARSDEN SQUARE-157



TEMPERATURE
SALINITY
SIGMA T
SHIP-CR,CRUISE-170,STA NO- 17
6-18-76,TIME-19.9 HR GMT
EEL-WES EBP FOR PCBS, PAVLOU
SIGMA T
0 5 10 15 20 25
SALINITY
0 5 10 15 20 25 30
TEMPERATURE-C
7 8 9 10 11 12 13 14
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
DEPTH-METERS
LAT-47 35.5 ,LONG-122 21.6
MARSDEN SQUARE-157

□ TEMPERATURE
+ SALINITY
⧖ SIGMA T

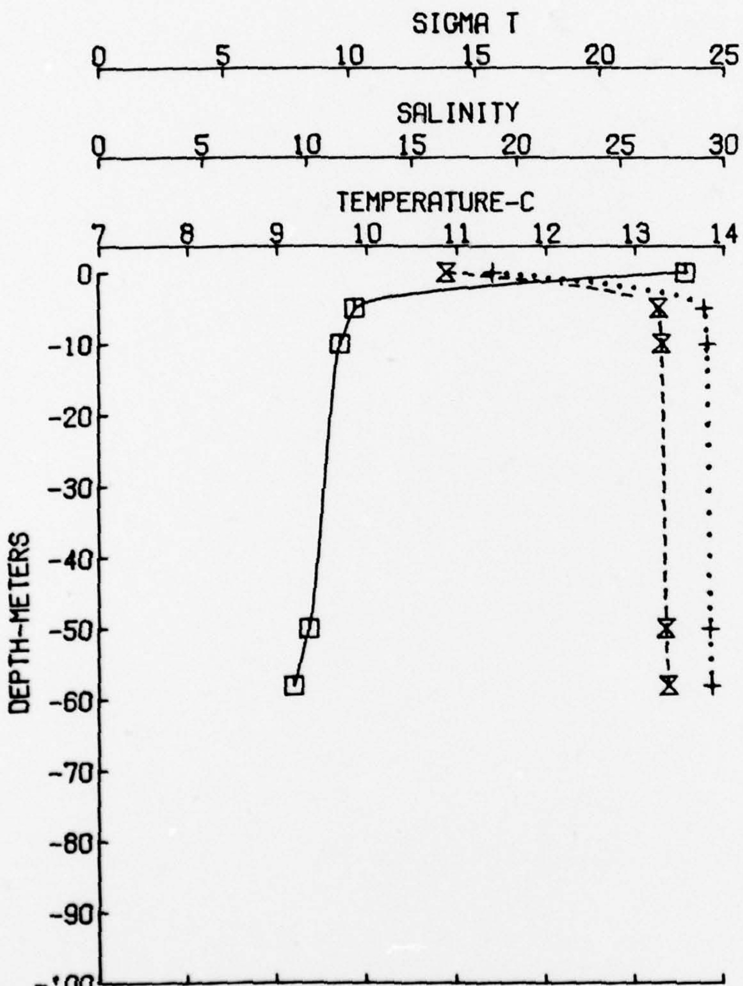
SHIP-CR,CRUISE-170,STA NO- 6
6-18-76,TIME-22.0 HR GMT
EEL-WES EBP FOR PCBS, PAVLOU



LAT-47 35.7 ,LONG-122 21.6
MARSDEN SQUARE-157

□ TEMPERATURE
+ SALINITY
⧗ SIGMA T

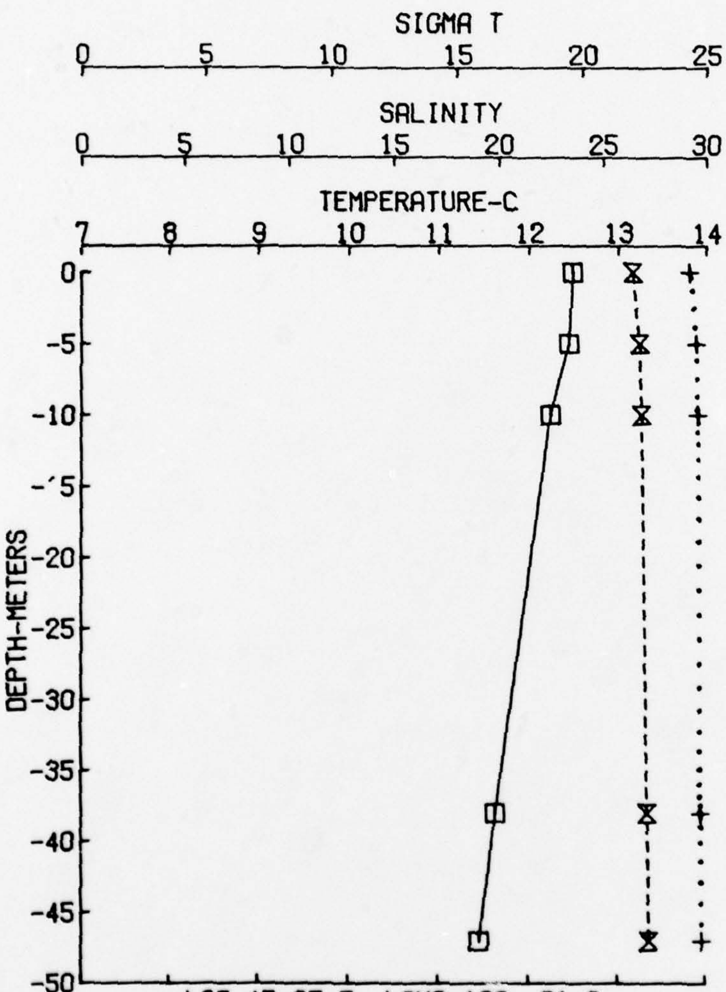
SHIP-CR.CRUISE-170.STA NO- 10
6-18-76.TIME-22.5 HR GMT
EEL-WES EBP FOR PCBS, PAVLOU



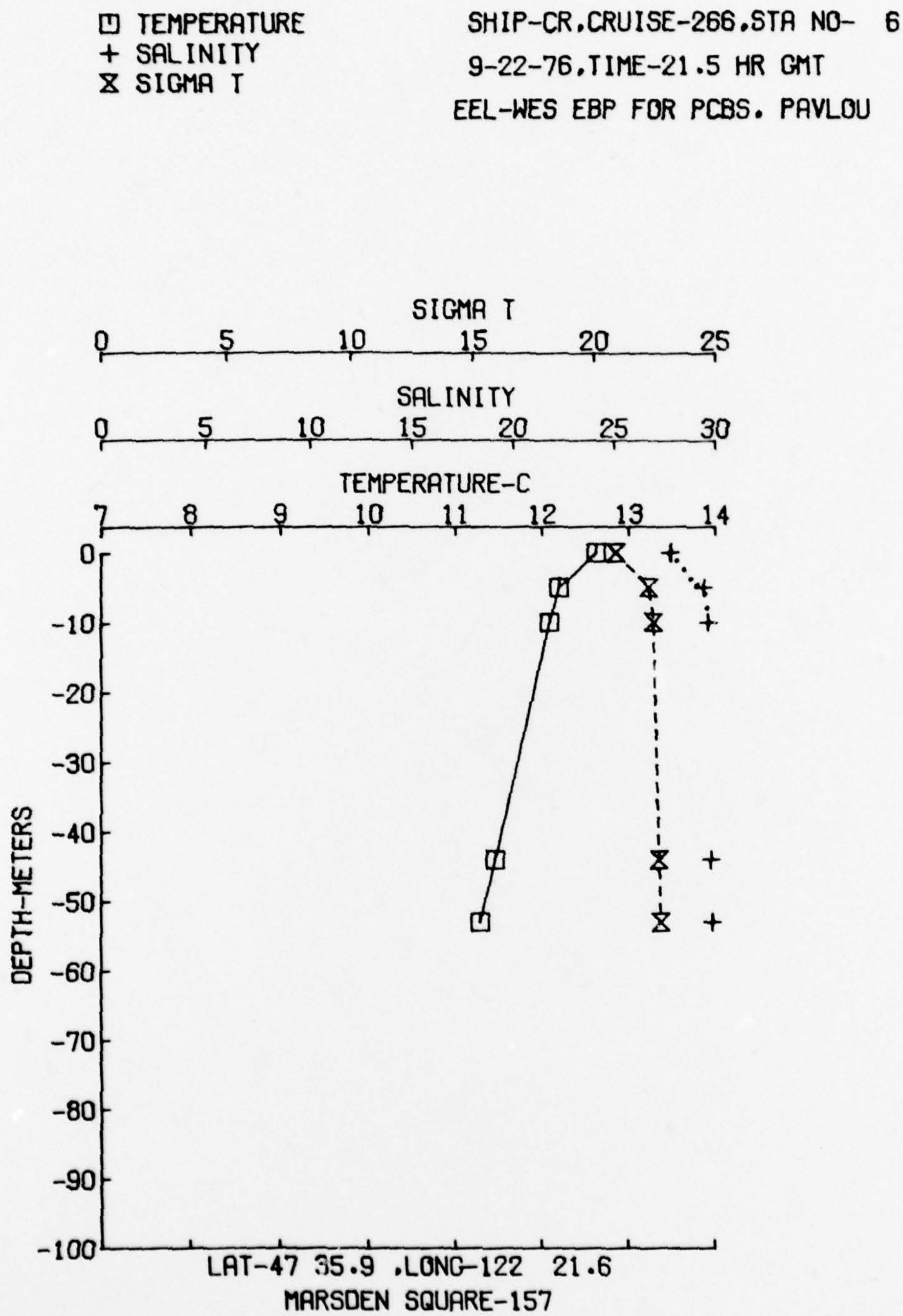
LAT-47 35.7 ,LONG-122 21.7
MARSDEN SQUARE-157

□ TEMPERATURE
+ SALINITY
⧗ SIGMA T

SHIP-CR,CRUISE-266,STA NO- 19
9-22-76,TIME-16.6 HR GMT
EEL-WES EBP FOR PCBS, PAVLOU

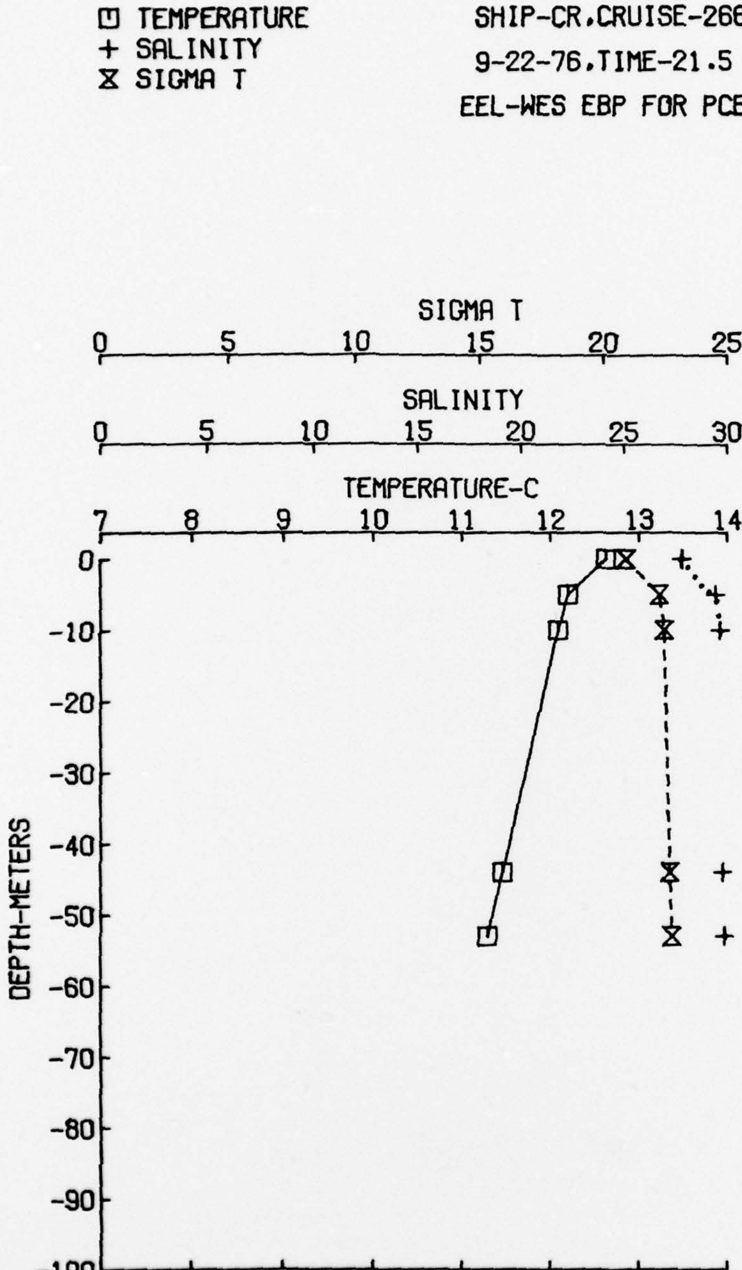


LAT-47 35.5 ,LONG-122 21.6
MARSDEN SQUARE-157



□ TEMPERATURE
+ SALINITY
⧖ SIGMA T
SHIP-CR,CRUISE-266,STA NO- 6
9-22-76,TIME-21.5 HR GMT
EEL-WES EBP FOR PCBS. PAVLOU
SIGMA T
0 5 10 15 20 25
SALINITY
0 5 10 15 20 25 30
TEMPERATURE-C
7 8 9 10 11 12 13 14
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
DEPTH-METERS
LAT-47 35.9 ,LONG-122 21.6
MARSDEN SQUARE-157

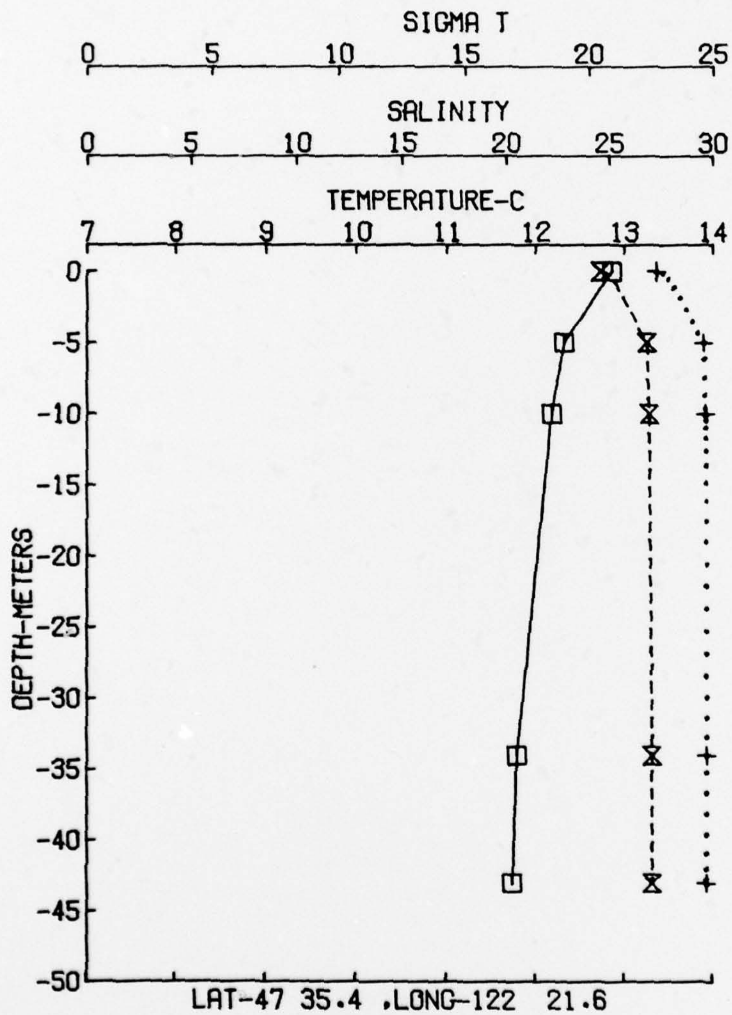
SHIP-CR,CRUISE-266,STA NO- 6
9-22-76,TIME-21.5 HR GMT
EEL-WES EBP FOR PCBS, PAVLOU



LAT-47 35.9 ,LONG-122 21.6
MARSDEN SQUARE-157

□ TEMPERATURE
+ SALINITY
⧖ SIGMA T

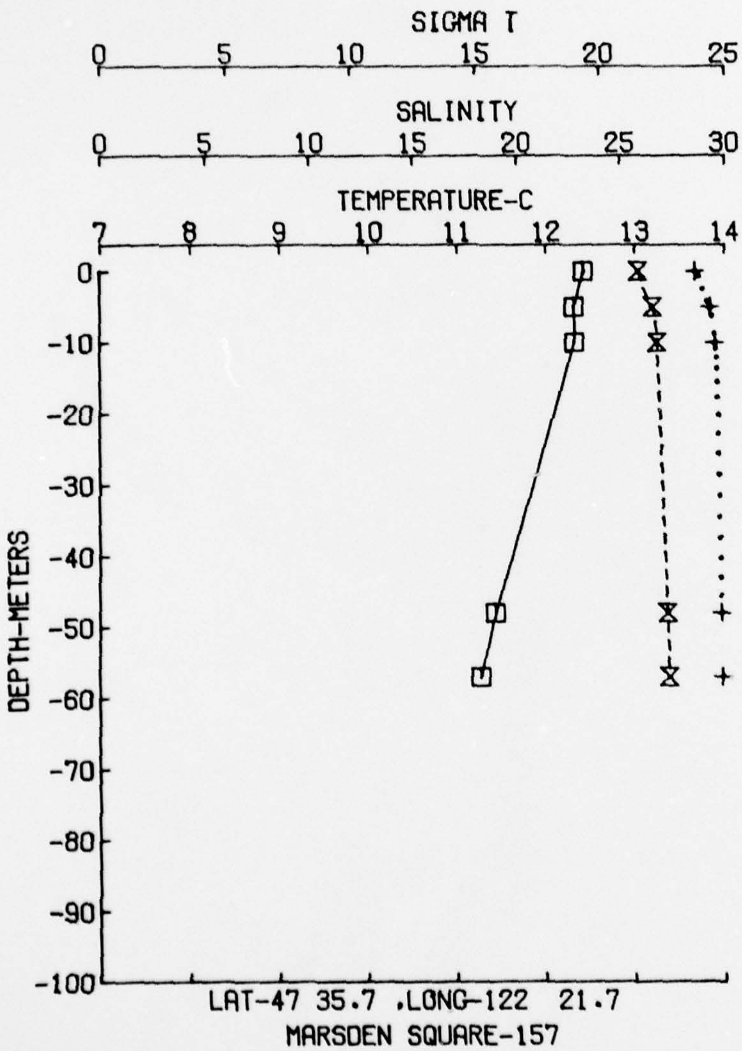
SHIP-CR,CRUISE-266,STA NO- 10
9-22-76,TIME-22.5 HR GMT
EEL-WES EBP FOR PCBS, PAVLOU



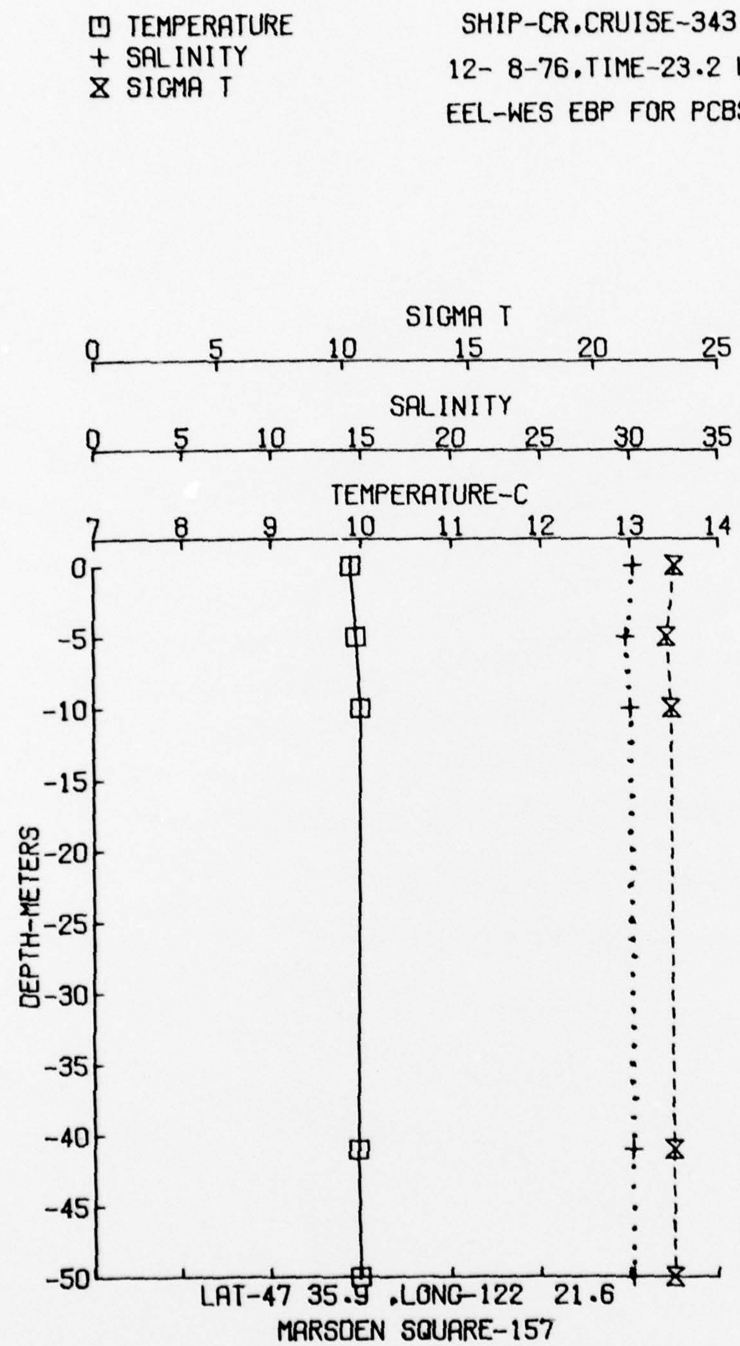
LAT-47 35.4 ,LONG-122 21.6
MARSDEN SQUARE-157

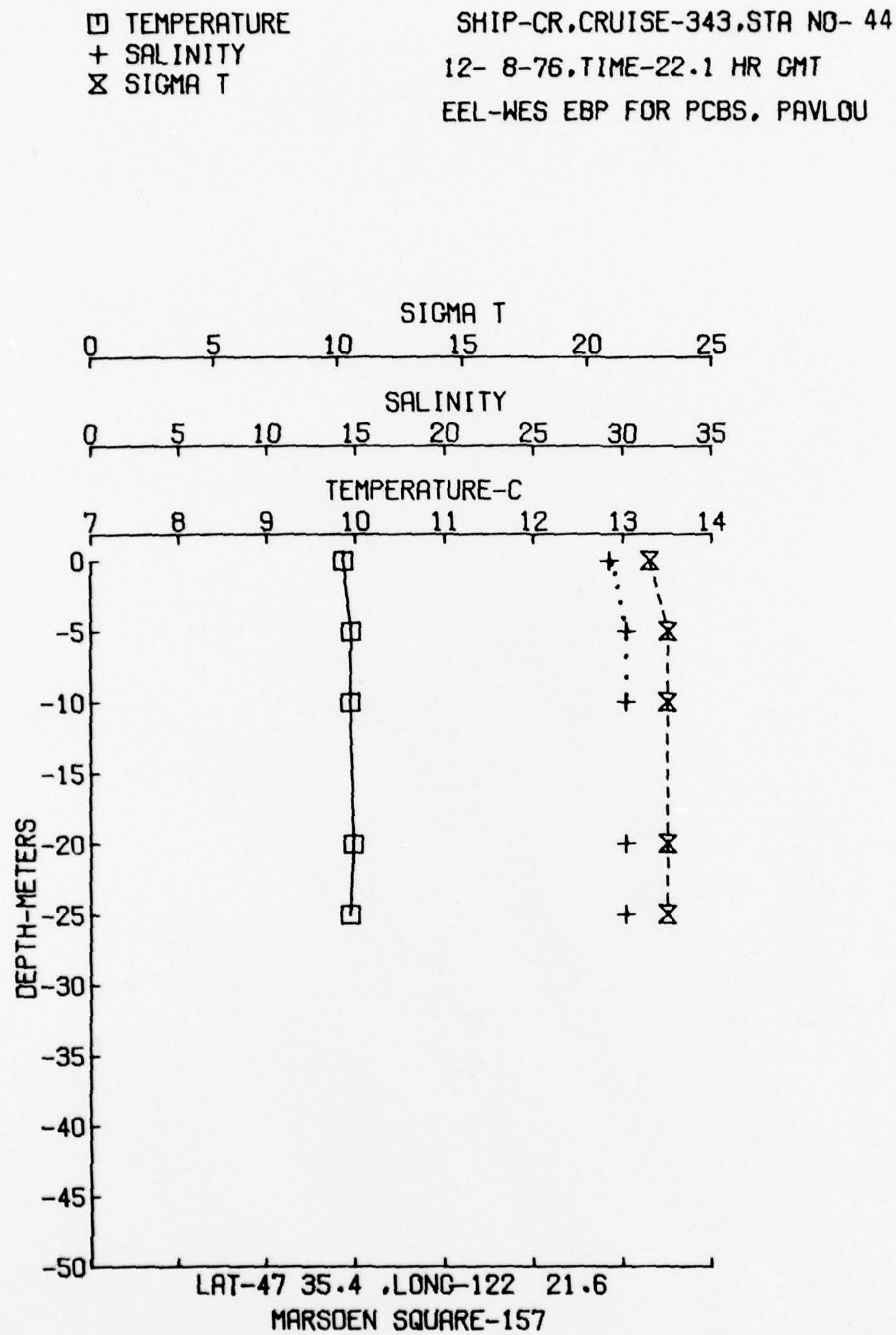
☐ TEMPERATURE
+ SALINITY
⧖ SIGMA T

SHIP-CR,CRUISE-266,STA NO- 17
9-22-76,TIME-19.6 HR GMT
EEL-WES EBP FOR PCBS. PAVLOU

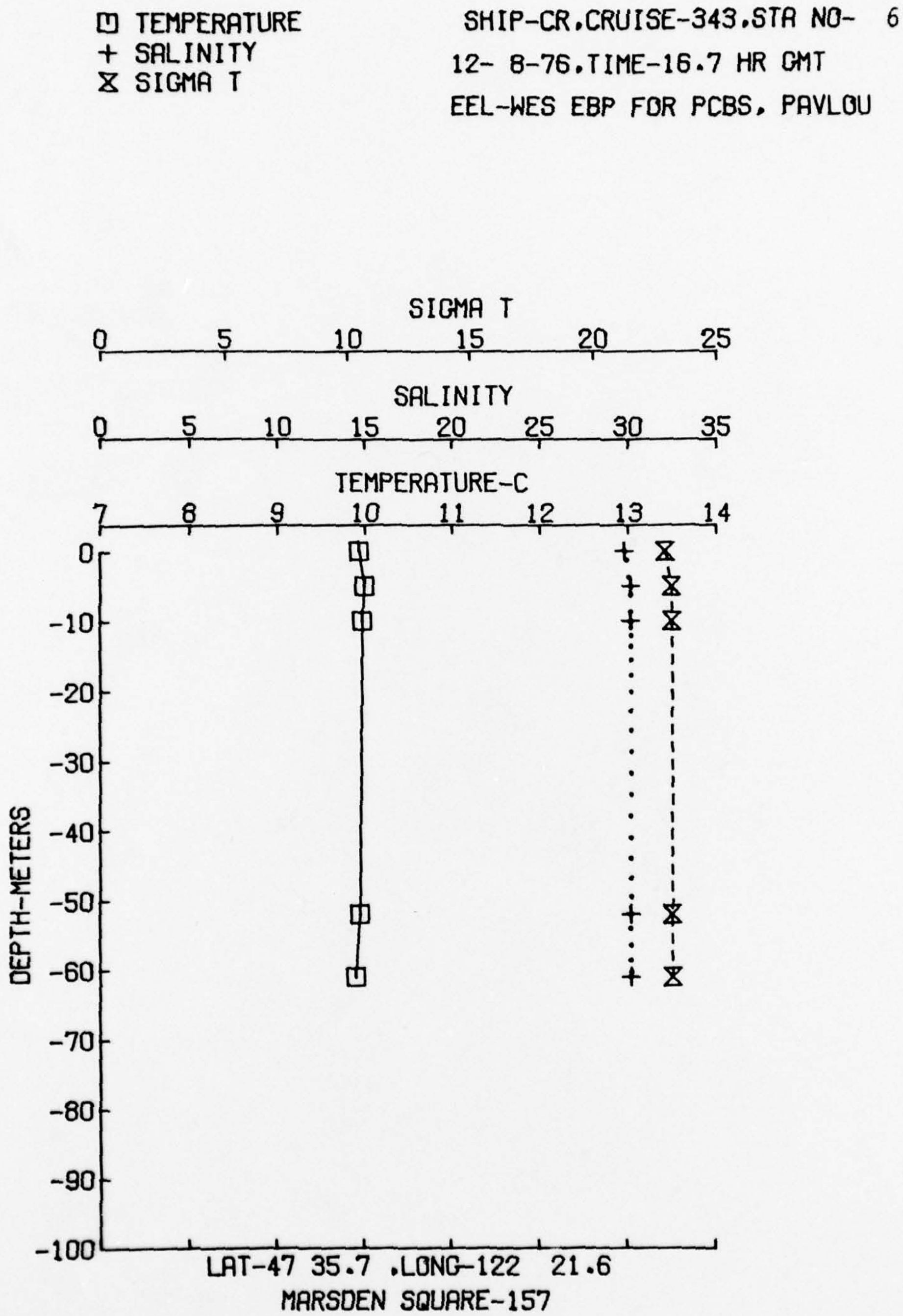


SHIP-CR,CRUISE-343,STA NO- 19
12- 8-76,TIME-23.2 HR GMT
EEL-WES EBP FOR PCBS, PAVLOU





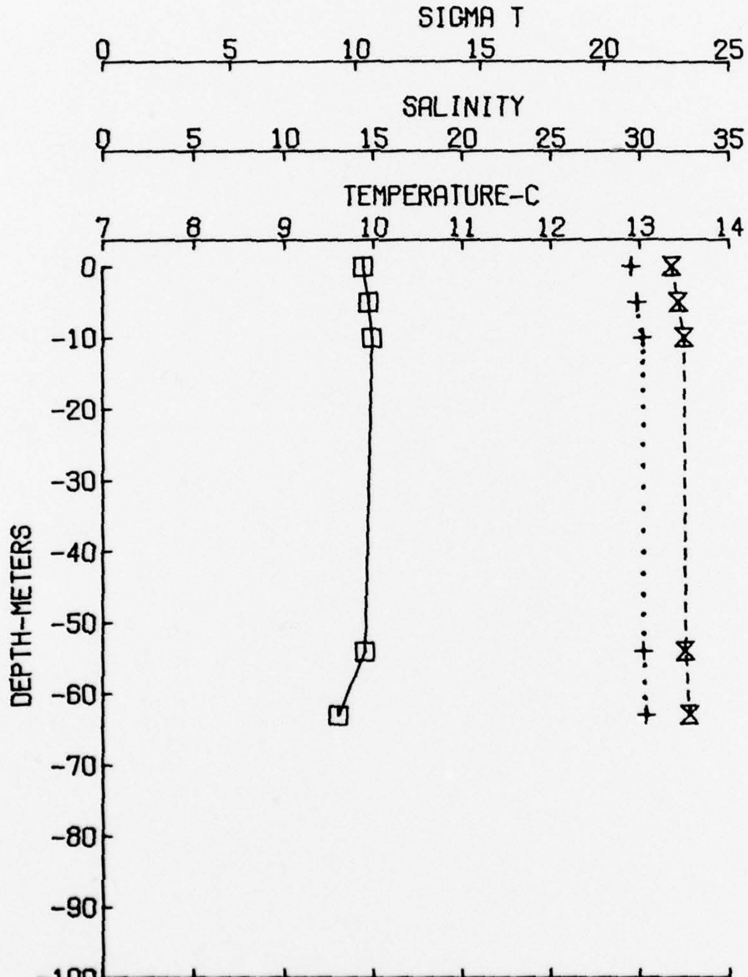
TEMPERATURE
SALINITY
SIGMA T
SHIP-CR,CRUISE-343,STA NO- 44
12- 8-76,TIME-22.1 HR GMT
EEL-WES EBP FOR PCBS, PAVLOU
SIGMA T
0 5 10 15 20 25
SALINITY
0 5 10 15 20 25 30 35
TEMPERATURE-C
7 8 9 10 11 12 13 14
0 -5 -10 -15 -20 -25 -30 -35 -40 -45 -50
DEPTH-METERS
LAT-47 35.4 ,LONG-122 21.6
MARSDEN SQUARE-157



TEMPERATURE
SALINITY
SIGMA T
SHIP-CR.CRUISE-343.STA NO- 6
12- 8-76.TIME-16.7 HR GMT
EEL-WES EBP FOR PCBS, PAVLOU
SIGMA T
0 5 10 15 20 25
SALINITY
0 5 10 15 20 25 30 35
TEMPERATURE-C
7 8 9 10 11 12 13 14
DEPTH-METERS
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
LAT-47 35.7 .LONG-122 21.6
MARSDEN SQUARE-157

☐ TEMPERATURE
+ SALINITY
⧖ SIGMA T

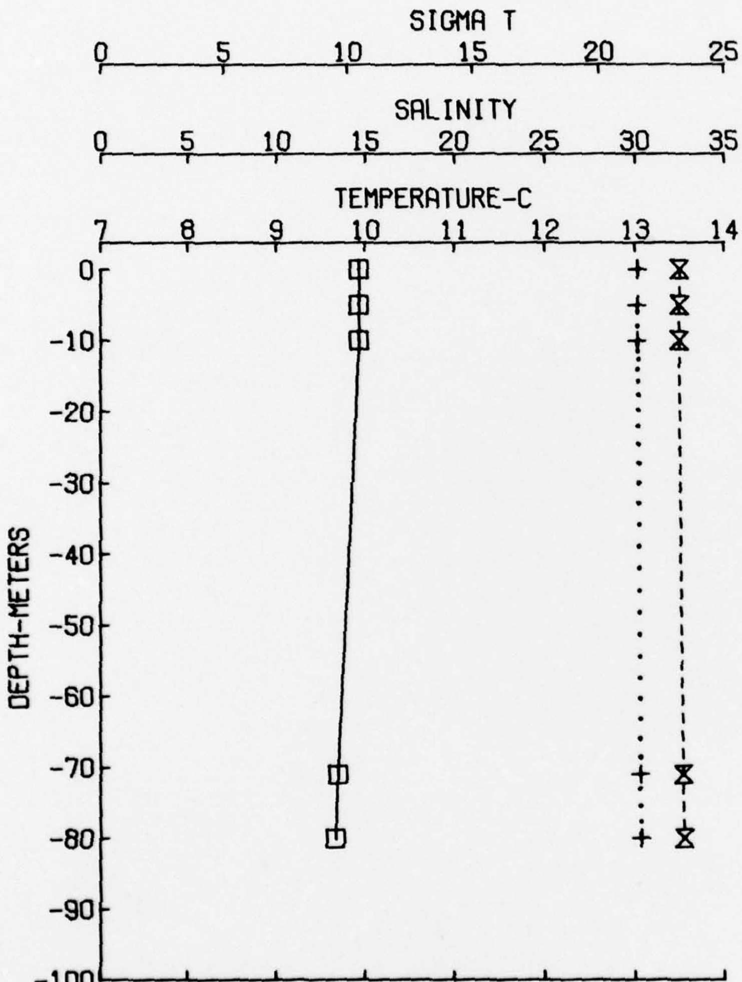
SHIP-CR,CRUISE-343,STA NO- 10
12- 8-76,TIME-18.6 HR GMT
EEL-WES EBP FOR PCBS. PAVLOU



LAT-47 35.7 ,LONG-122 21.7
MARSDEN SQUARE-157

□ TEMPERATURE
+ SALINITY
⧖ SIGMA T

SHIP-CR,CRUISE-343,STA NO- 17
12- 8-76,TIME-20.2 HR GMT
EEL-WES EBP FOR PCBS, PAVLOU



LAT-47 35.5 ,LONG-122 21.6
MARSDEN SQUARE-157